

CHARACTERISTICS OF THE SPECIFIC LEARNING  
DISABLED (SLD) DROPOUT AND AN ANALYSIS OF THE  
"HOLDING POWER" OF EXCEPTIONAL EDUCATION SERVICES

By

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## TABLE OF CONTENTS

	<u>page</u>
ACKNOWLEDGEMENTS . . . . .	iii
LIST OF TABLES . . . . .	viii
ABSTRACT . . . . .	x
CHAPTER	
I    INTRODUCTION . . . . .	1
Background of the Study . . . . .	3
Statement of the Problem . . . . .	8
Delimitations . . . . .	10
Limitations . . . . .	11
Significance of the Study . . . . .	12
Assumptions . . . . .	13
Definitions of Terms . . . . .	14
Organization of the Study . . . . .	19
II   REVIEW OF RELATED LITERATURE . . . . .	20
Magnitude of the Dropout Problem . . . . .	20
Factors Related to Dropping Out . . . . .	22
Demographic and Family Background	
Factors . . . . .	25
School-Related Factors . . . . .	29
Individual Factors . . . . .	37
Summary . . . . .	38
Programs for Dropouts . . . . .	39
Program Evaluation . . . . .	42
Characteristics of Effective Programs .	44
Summary . . . . .	51
Exceptional Education Services . . . . .	52
History of Exceptional Education . . . .	52
Program Similarities . . . . .	55
Student Similarities . . . . .	56
Effectiveness of Services . . . . .	58
Factors Related to Dropping Out . . . .	60
Summary . . . . .	65
Summary and Critique . . . . .	66

III	METHODOLOGY	70
	Review of the Statement of the Problem	70
	Study Setting	70
	Population	71
	Study Questions and Hypotheses	71
	Procedures	73
	Analysis of Data	80
IV	RESULTS	83
	Characteristics of SLD Dropouts and Persisters	83
	SLD Sample/Population Comparisons	84
	SLD Sample Characteristics	84
	Relationship between Reading Achievement and Dropout Status	87
	Relationship between Mathematics Achievement and Dropout Status	88
	Relationship between Entry Age and Dropout Status	91
	Relationship between Race and Dropout Status	93
	Relationship between Sex and Dropout Status	94
	Additional Analysis	94
	Characteristics of Regular Education Dropouts and Persisters	95
	Exceptional Education Program Holding Power	100
	Program Sample/Population Comparison	101
	Program Participation of Dropouts	103
	SLD Program Holding Power	104
	EH Program Holding Power	107
	EMH Program Holding Power	108
	Gifted Program Holding Power	109
	Summary of the Program Holding Power	110
	Review of the Results	110
V	SUMMARY, CONCLUSIONS, AND IMPLICATIONS	113
	Summary	113
	Characteristics of SLD Dropouts and Persisters	114
	Characteristics of Regular Education Dropouts and Persisters	115
	Exceptional Education Program Holding Power	116
	Conclusions	119
	Characteristics of Dropouts and Persisters	120
	Literature Related to the Characteristics of Dropouts	121

Exceptional Education Program Holding Power . . . . .	123
Literature Related to Program Holding Power . . . . .	125
Implications . . . . .	130
Implications Related to Dropout Characteristics . . . . .	131
Implications for Program Holding Power . . . . .	133
Implications for Future Research . . . . .	136

## APPENDICES

A     SPECIFIC LEARNING DISABILITIES PROGRAM GUIDELINES . . . . .	138
B     EMOTIONALLY HANDICAPPED PROGRAM GUIDELINES . . . . .	140
C     EDUCABLE MENTALLY HANDICAPPED PROGRAM GUIDELINES . . . . .	142
D     GIFTED PROGRAM GUIDELINES . . . . .	143
REFERENCES . . . . .	145
BIOGRAPHICAL SKETCH . . . . .	149

## LIST OF TABLES

<u>Table</u>		<u>page</u>
1	SLD Sample/Population Comparison on Race, Sex, and Dropout Status . . . . .	85
2	Dropout Rate by Race, Sex, and Age for the SLD Sample (N=242) . . . . .	86
3	Means and Standard Deviations (SD) of the Reading, Mathematics, and Entry Age Variables for the SLD Sample (N=242) . . . . .	87
4	Multiple Regression Summary Table for SLD Students (N=242) . . . . .	89
5	Dropout Rate by Mathematics Grade Level for the SLD Sample (N=242) . . . . .	92
6	Multiple Regression Summary Table for Regular Students (N=4,679) . . . . .	96
7	Dropout Rate by Reading Grade Level for the Regular Education Sample (N=4,679) . .	98
8	Dropout Rate by Mathematics Grade Level for the Regular Education Sample (N=4,679) . .	99
9	Dropout Rate by Age for the Regular Education Sample (N=4,679) . . . . .	100
10	Program Sample/Population Comparison by Program . . . . .	102
11	Program Participation of Dropouts . . . . .	103
12	Multiple Regression Summary Table for SLD and Regular Education Students (N=4,921) .	105
13	Relationship Between the Dropout Rates of the SLD and Regular Students (N=8,321) . .	106
14	Relationship Between the Dropout Rates of the EH and Regular Students (N=7,983) . .	107

15	Relationship Between the Dropout Rates of the EMH and Regular Students (N=8,005) . . .	108
16	Relationship Between the Dropout Rates of the Gifted and Regular Students (N=8,314) . . . . .	109
17	Summary of Program Holding Power . . . . .	111

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In light of the need to improve the "holding power" of specific exceptional education programs, this study was conducted to investigate the influence of school-related variables on the dropout status of students enrolled in the specific learning disabilities (SLD) program and to obtain information about the effectiveness of the SLD, emotionally handicapped, educable mentally handicapped, and gifted programs. An ex post facto design was used and the data were obtained from student computer records. The subjects consisted of 8,800 sophomore students from a single public school district located in a southeastern state.

Multiple regression strategies were used to determine the characteristics of SLD dropouts and persisters. Entry age to the tenth grade was found to be significantly ( $p < .05$ ) related to the SLD students' dropout status. When the students' entry age increased, their probability of

dropping out also tended to increase. The variables of reading and mathematics achievement, race, and sex were found not to be significantly related to the SLD students' dropout status. The characteristics of regular education dropouts and persisters were also compared. The factors that were related to the regular students' dropout status were reading and mathematics achievement and entry age. There appear to be differences between SLD and regular education dropouts that could be addressed within the students' curricula.

An additional multiple regression analysis of SLD and regular education students ( $n=4,921$ ) suggested that the students' program was significantly ( $p<.05$ ) related to their dropout status after controlling for reading and mathematics achievement, entry age, race, and sex. A chi-square analysis also revealed that the SLD program's holding power was significantly ( $p<.05$ ) lower than the regular program's holding power.

Chi-square analyses revealed that the holding power of both the emotionally handicapped and the educable mentally handicapped programs was not significantly different from the holding power of the regular program. The holding power of the gifted program was significantly ( $p<.01$ ) higher than the holding power of the regular program. Implications for strengthening the holding power of exceptional education programs and directions for future research are included.

## CHAPTER I INTRODUCTION

Estimates indicate that 25% of all fifth grade students will not complete high school (Mann, 1986; Wehlage & Rutter, 1986). In actual numbers, it is estimated that between 800,000 and 1,000,000 youths drop out of school each year. When a student fails to complete high school, there are negative consequences for the individual student and for society.

Researchers have documented that the dropout will experience more difficulty obtaining a job, will be employed in a job that is less satisfying than that of a high school graduate, and will earn less than a high school graduate (Gainer, 1986; Pallas, 1984; Rumberger, 1987). In addition, the dropout is not as academically able as the high school graduate. This affects the dropout's ability to compete in the labor market (U.S. Department of Education [USDE], 1987).

Among the consequences of not completing high school are additional costs for society related to welfare, criminal justice, public health, and an overall reduction of our national revenue. It has been estimated that today's dropouts are costing our society approximately \$145 billion each year. Other nonmonetary, personal

consequences of dropping out include poorer health, decreased political participation, and lessened social mobility (Lyke, 1986).

Researchers have documented the typical characteristics of the dropout. Dropouts tend to obtain low grades, be below grade level academically, be older than the average student at their grade level because of previous retention, and often demonstrate behavior problems in school before they drop out. The student "at risk" of dropping out therefore has a fairly well-defined profile which can be identified before he or she leaves school.

There are obvious similarities between students who are at risk of dropping out of school and students who are staffed into specific exceptional education programs. In addition, exceptional education programs possess many of the same characteristics of effective dropout prevention programs. However, there has been little research which provides information about the effectiveness of exceptional education as a dropout prevention program. In addition, researchers have found that the factors related to nonhandicapped students' dropping out are not the same factors which influence specific learning disabilities (SLD) students to drop out (Zigmond, Thornton, & Kohnke, 1986). Therefore, there is a need to know more about the characteristics of SLD dropouts and about the "holding power" of specific exceptional education programs. With a better understanding of these relationships, educators may

be able to use existing exceptional education services more effectively to prevent at-risk students from dropping out of school.

The purpose of this study was to investigate the relationship between selected "school-related" characteristics of SLD students and their "dropout" status. In addition, the holding power of specific exceptional education programs was investigated.

#### Background of the Study

Students who are placed into exceptional education programs often possess characteristics similar to those of at-risk students prior to being staffed into a specific exceptional education program. It would not be uncommon to place a student who was below grade level, and demonstrating school behavioral problems, into one of several exceptional education programs, depending on the severity of the particular problems, the student's educational and home histories, and the student's psycho-educational profile. For example, students who are identified as having a specific learning disability (SLD) often demonstrate weak academic skills and obtain low grades prior to their placement within the exceptional education program. In addition, they may have been retained in school and they may have demonstrated behavioral difficulties in school prior to their placement. There is considerable evidence to suggest that the SLD category is primarily one of under-achievement (Ysseldyke, Algozzine, Shinn, & McGue, 1982).

Researchers have indicated that the major difference between the SLD student and the underachieving student may be that the SLD student receives the exceptional education services (Ysseldyke et al., 1982).

Exceptional education services are one alternative available to at-risk students who are experiencing difficulties within their educational environments. Algozzine, Ysseldyke, and Christensen (1983) have indicated that

schools are established by society to instill in children its beliefs and knowledge base. It is clear that either schools fail to educate significant numbers of students, or significant numbers of students fail to profit sufficiently from schooling. A variety of approaches have evolved as methods for helping schools cope with the failure of America's children; special education is but one of these alternatives. (p. 141)

Within the Education for the Handicapped Act (EHA) there are provisions for federal funds to be provided to states, for the purpose of providing special services to children who are identified and staffed into exceptional education programs. Within the EHA there are also very specific guidelines for classifying students into specific programs and for determining what services should be provided. It is mandated by law that an individual educational plan be developed for each student. In practice, the plan is supposed to be based on the specific student's needs, and the student is then evaluated on his or her progress within the program which was developed. Therefore, the program provided is supposed to be relevant to the needs and interests of the students. Exceptional education services

are typically provided to small groups of students with low student-teacher ratios.

Another similarity between dropouts and exceptional education students is in regard to the type of service they receive. Exceptional education programs contain many of the characteristics of effective dropout prevention programs. Characteristics common to successful dropout prevention programs include small class size with a low student-teacher ratio, personal attention to pupil needs, an emphasis on the immediate and practical, basic skills instruction, rewarding of student achievement, and follow-up after the student leaves school (Dropouts: Who, 1986).

There are many different exceptional education programs and services available. However, programs for three types of students--SLD, emotionally handicapped (EH), and educable mentally handicapped (EMH)--provide services to students who possess many of the characteristics typical of school dropouts. These three exceptional student types demonstrate behaviors similar to those of typical school dropouts. An SLD student typically has demonstrated specific academic weaknesses within his or her school environment before the student is staffed into an SLD program (see Appendix A for a typical set of county guidelines). An EH student typically has a history of behavioral adjustment problems within his or her school environment and often also demonstrates weak academic skills (see Appendix B for county guidelines). An EMH student typically demonstrates

weak academic skills and possesses abilities which are significantly below what would be expected of his or her age level (see Appendix C for county guidelines).

On the other hand, a fourth program--the gifted program--is targeted for students whose characteristics appear to be negatively correlated with those of school dropouts. A gifted student must demonstrate intellectual abilities which are significantly above what is usually expected at his or her age level. The gifted student often demonstrates above-average academic skills at the time he or she is identified for the program (see Appendix D for county guidelines).

Despite the obvious similarities between the students who are at risk of dropping out of school and the students who are staffed into specific exceptional educational programs such as SLD, EH, and EMH, there has been little research which provides information about the effectiveness of exceptional education as a dropout prevention program. The results of a recent longitudinal study of student dropout rates in Miami, Florida, for example, indicated that students who were participating within exceptional education programs (excluding the gifted program) dropped out of school at a rate that was higher than the regular student rate (Stephenson, 1987). However, Stephenson did not consider the gifted students' dropout rate, nor did he examine the dropout rates of specific exceptional education programs.

The available research has provided little information about the holding power of specific exceptional education services. There is some literature which suggests that gifted students are not dropping out at a disproportionate rate and that, in general, exceptional education students (excluding the gifted) are dropping out at a rate which is higher than that for students in regular education. However, there has been very little research which provides educators with data about the dropout rate of gifted, SLD, EH, and EMH students. Educators need to know if those who are receiving exceptional education services are leaving the schools at a rate which is disproportionate to that of the general population.

In summary, researchers on dropouts have identified common characteristics of the student at risk of dropping out of school. Students who are staffed into specific exceptional educational programs may be demonstrating behavioral characteristics which are very similar to those of the student who is at risk of dropping out of school. Typical exceptional education services are consistent with the type of services provided through a good dropout prevention program. Despite the obvious similarities between dropout prevention programs and exceptional educational programs, there has been very little research which provides information about the effectiveness of exceptional education as a dropout prevention program. In addition, researchers have indicated that the only difference between

the SLD student and the underachieving student may be that the SLD student receives the exceptional education services (Ysseldyke et al., 1982). However, Zigmond et al. (1986) found that the factors which were related to dropping out in SLD students were not the same factors which influenced nonhandicapped students to dropout. Therefore, there was a need to investigate further the factors which influenced the SLD student to drop out.

#### Statement of the Problem

Experts in the field of dropout prevention are calling for schools to be more responsive to the needs of the at-risk students. Exceptional education has had a long history of providing special services for students who have demonstrated difficulties adapting to the regular school programs. However, the problem is that little has been known about the holding power of specific exceptional education programs and there has been a need to obtain additional data about the characteristics of SLD dropouts and persisters. With a better understanding of the effectiveness of existing services and the factors which are related to SLD students' dropping out, school systems may be able to utilize more effectively exceptional education services to help prevent at-risk students from dropping out of school.

The purpose of this study was to investigate the relationship between selected characteristics of SLD students in a large urban school district and their dropout

status. In addition, the holding power of specific exceptional education programs was investigated.

The researcher analyzed student records in order to answer the following questions:

1. What is the relationship between the specific learning disabilities (SLD) students' reading achievement and their dropout status?

2. What is the relationship between the SLD students' mathematics achievement and their dropout status?

3. What is the relationship between the SLD students' age upon entry to tenth grade and their dropout status?

4. What is the relationship between the SLD students' race and their dropout status?

5. What is the relationship between the SLD students' sex and their dropout status?

6. What proportion of the school dropouts were participating within the gifted, specific learning disabilities, emotionally handicapped, and educable mentally handicapped exceptional education programs at the time they left the school system?

7. What is the relationship between the students' program (regular and SLD) and their dropout status?

8. What is the difference between the dropout rate of students in the regular education program and the dropout rate of students in each investigated exceptional education program?

The study contained two distinct components. In the first component, which was related to questions one through five, the researcher attempted to determine the characteristics of SLD dropouts and persisters. There was a focus on student variables which are believed to be alterable by SLD program policy and instruction. In the second component, which was related to questions six, seven, and eight, the researcher evaluated the four exceptional education programs by comparing their holding power to the holding power of the regular education program. Ralph Tyler's (1950) Objectives-Outcomes Evaluation Model was considered when the exceptional education program objectives were related to the students' exit patterns.

#### Delimitations

This investigation was restricted in scope due to the following reasons:

1. Only five independent variables were used to investigate the characteristics of the SLD dropouts and persisters.
2. The holding power of only four exceptional education programs was investigated.
3. Only the 1986-87 sophomore exit patterns were used to evaluate the specified exceptional education programs.
4. The population for this study included all the sophomore students who were enrolled in one large school

district in a populous southeastern state during the 1986-87 school year. Data were collected from the school district's computer records on each student within the population.

5. The Comprehensive Tests of Basic Skills (CTBS) was used to measure academic skills.

#### Limitations

The following limitations to the investigation were noted:

1. The investigation was causal-comparative or ex post facto in design; as such, causal inferences could not be made because the independent variable was not manipulated. In a causal-comparative study only a relationship is established.

2. Student computer records were utilized in order to compute a cross-sectional dropout rate. Every dropout rate contains a component of error which is created by inaccurate student records. Stephenson (1987) indicated that

there is reason to believe that file error could easily produce overall rates which are over or understated by five to ten percent of their actual value, that is, a true 20% rate might be reported in a range from 18 to 22 percent. (p. 42)

3. Students were grouped by their exceptional education classification for the 1986-87 school year. Internal validity could have been jeopardized to the extent that the program classification was inaccurate.

4. Internal validity could have been jeopardized by the lack of control of all the confounding variables which could have affected the dropout rate.

5. Population validity could be established only to the extent that the characteristics of another school system were similar to those of Beach County Public Schools (BCPS) (the county's real name was not revealed in order to help maintain confidentiality) and to the extent that the sophomore students were similar to high school students at different grade levels.

#### Significance of the Study

When the decision is made not to complete high school, both the individual and the nation experience negative consequences. The dropout phenomenon is affecting one out of every four of our youths and is costing our society approximately \$145 billion each year. Researchers have documented characteristics of the typical dropout. Now there is a need to investigate the characteristics of specific groups of students who may be considering leaving school. Only by isolating factors that are associated with specified groups of students can enough practical information be obtained to improve existing programs and to develop new effective dropout prevention programs. The conclusions derived from this study have added information to the current body of knowledge in the dropout area and may contribute to the improvement of dropout prevention programs.

Exceptional education and related services are now being provided to more than 4 million children or more than 9.5% of the students enrolled in schools (Algozzine et al., 1983). Exceptional education services have been considered as dropout prevention services within various school districts. However, the results of a recent study of student dropout rates indicated that students who were participating within exceptional education programs (excluding the gifted program) dropped out of school at a rate that was higher than the regular student rate (Stephenson, 1987).

Despite the obvious similarities between the students who are at risk of dropping out of school and the students who are staffed into specific exceptional educational programs such as SLD, EH, and EMH, there has been little research which provides information about the effectiveness of exceptional education as a dropout prevention program. This study provides educators with additional information about the characteristics of SLD dropouts and about the school holding power of specific exceptional education programs. With a better understanding of these relationships educators may be able to utilize more effectively existing exceptional education services to help prevent at-risk students from dropping out of school.

#### Assumptions

The major assumptions that applied to the research study were as follows:

1. The Comprehensive Tests of Basic Skills was a valid and reliable measurement of student achievement.

2. School dropout information was accurately reported and recorded by the school system.

3. Student records and exceptional education classifications were accurately reported by the school system.

4. For the purpose of this study if a student had a chronological age of 16 years or older when he or she entered tenth grade in 1986 (over-age) it was assumed that the student was previously retained.

5. A student's age upon entry to the tenth grade was assumed to be alterable by program retention policy.

6. A student's reading and mathematics achievement was assumed to be alterable by program policy and instructional efforts.

#### Definition of Terms

The following definitions were accepted for the purpose of the study:

At-risk students are defined as youths who have serious academic and/or personal problems that are likely to lead to dropping out (Wehlage, 1986).

A dropout is an individual not subject to the compulsory attendance law who leaves school either prior to high school graduation, or before completing a program of study without transferring to a private or public school or educational institution within sixty school days during the required school year (Sikes, 1986). If a student is expelled or dies, he or she is not considered a dropout. More specifically, it refers to an individual who has been

reported by the Beach County Public Schools as a withdrawal code five (5).

The dropout rate is the number of pupils who were considered enrolled within the Beach County Public Schools on June 15, 1987 and the number of dropouts. The dropout rate is the number of dropouts divided by the number of students enrolled, expressed as a percentage. This is a cross-sectional method of calculating the annual dropout rate. The annual dropout rate is useful in determining the incidence of dropping out during a year and for comparing rates among different grades, programs, schools or school systems (Schreiber, Kaplan, & Strom, 1965).

The dropout status is the dichotomous classification of students at the end of his/her sophomore year. The students are classified as dropouts or persisters by analyzing their school records.

Within the educable mentally handicapped (EMH) program services for EMH students from preschool to twelfth grade are provided. Although state and federal guidelines are used to identify students for placement in the EMH program, the instructional program is tailored to meet the student's individual needs. Both academic and social needs are met by specially trained teachers. All EMH students are provided opportunities to participate in regular classroom programs and school activities.

The educable mentally handicapped (EMH) student learns at a slower rate than students in the regular program. An

EMH student typically demonstrates weak academic skills and possesses abilities which are significantly below what would be expected of his or her age level (see Appendix C).

The emotionally handicapped (EH) program is an individualized curriculum for the emotionally handicapped. The program is designed to effect positive changes in the student's behaviors, as well as to build academic skills. The program also promotes the development of positive self-concepts and improved social skills, exploration of various career options, and the development of vocational skills, as specified on the individual education plans of students.

An emotionally handicapped (EH) student typically has a history of behavioral adjustment problems within his or her school environments and often also demonstrates weak academic skills (see Appendix B). EH students need special help at school because their emotional and behavioral problems interfere with their academic progress.

Entry age is defined as a student's chronological age upon entry to the tenth grade during the 1986-87 school year.

Within the exceptional education programs significant adaptations are provided to the regular education program in one or more of the following: curriculum, methodology, materials, equipment or environment. The SLD, EH, EMH, and gifted programs are several of the available exceptional education services.

The gifted program is a curriculum for gifted students that is based on research findings concerning learning

characteristics and capabilities of gifted students. Activities are planned to prepare students for a challenging and productive future. The program helps each student develop thinking skills, communication skills, and personal growth skills.

A gifted student must demonstrate intellectual abilities which are significantly above what is usually expected at his or her age level. The gifted student often demonstrates above average academic skills at the time he or she is identified for the program (see Appendix D).

The holding power is the number of pupils who were considered enrolled within the BCPS on June 15, 1987 and the number of pupils who were considered enrolled within the BCPS on June 15, 1987 minus the number of dropouts. The holding power is the number of students enrolled minus the number of dropouts, divided by the number of students enrolled, expressed as a percentage. The holding power may also be computed by subtracting the dropout rate from 100%. The holding power plus the dropout rate should equal 100%. It is useful in comparing holding power among schools or programs and in comparing the holding power of one school or school system for different years (Schreiber et al., 1965).

The individual education plan (IEP) was considered by the authors of Public Law 94-142 as the key to providing appropriate services for the handicapped child. All programming must be done on an individual basis and must

allow for parental input as well as that of professional educators. The IEP identifies the areas of instructional need and related services. The IEP is a legal document with specific components mandated by federal and state regulations. The duration date on the IEP may not exceed one calendar year from the initiation date. If the IEP is to be changed during the duration period, an educational planning conference must be held.

Mathematics achievement is defined as a student's most recent ninth grade total mathematics scaled score on the CTBS.

Normal-age students are defined as students who entered the tenth grade on September 1, 1986 with a maximum chronological age of 15 years and 11 months.

Over-age students are defined as students who entered the tenth grade on September 1, 1986 with a minimum chronological age of 16 years and 0 months.

Persisters are students who are not dropouts. More specifically, in this study persisters were all tenth grade students who were not reported as a dropout during the 1986-1987 school year.

Reading achievement is defined as a student's most recent ninth grade total reading scaled score on the CTBS.

The specific learning disabilities (SLD) program includes several areas. Evaluation services are provided. Instructional assistance is provided to SLD students so that they can learn skills they have been unable to gain

from instruction in a regular classroom. Support is provided to SLD students, their parents, and other professionals involved with their education so that a total educational program may be developed. Progress is closely monitored so that changes may be made in the program as needed.

Specific learning disabilities (SLD) students typically have demonstrated specific academic weaknesses within their school environments before they are staffed into the SLD program (see Appendix A). SLD students experience difficulties in taking in, organizing, remembering, and/or expressing information. Students in the program show a significant difference between their estimated intelligence and their actual level of achievement in the classroom. This discrepancy cannot be explained by physical impairments, emotional reasons, or educational background. Instead, it is assumed to be a disorder in the basic learning process.

#### Organization of the Study

The study report is organized into five chapters. The review of related literature is presented in the second chapter. Methodology and procedures are described in the third chapter. The fourth chapter contains the presentation and analysis of the data. A summary of the study, along with conclusions and implications, comprises the fifth chapter.

## CHAPTER II REVIEW OF RELATED LITERATURE

The review of related literature is presented in four major sections. The first section describes the magnitude of the dropout phenomenon. This section is followed by a section on factors related to dropping out, programs for dropouts, and exceptional education services. These sections relate to the independent variables that were examined in the present study. As the studies relating to the independent variables are reviewed, attention is given to the results and conclusions of these studies in order to provide the reader with an understanding of how the present research was related to the findings and unanswered questions in prior research of a similar nature.

### Magnitude of the Dropout Problem

It is estimated that about 25% of our nation's children will not complete high school (Dropouts: Who, 1986; Mann, 1986; Wehlage & Rutter, 1986). However, it is difficult to know for sure how many students are really dropping out due to inconsistent definitions of dropouts and inconsistent methods for computing the dropout rate. These inconsistencies also make it difficult to evaluate and/or compare the effectiveness of dropout prevention programs. Factors such as choice of cohort, initial membership in cohort, definition of dropout, time for

determining dropout status, sources of information and level of determination must all be considered when attempting to compare or to compute dropout rates (Rumberger, 1987). Some of the nation's larger inner city school districts have reported dropout rates which exceeded 50% (Toles, Schulz, & Rice, 1987). Florida's dropout rate of 38% during the 1985-86 school year was ranked the highest among the 50 states (Lively, 1988); and in the 1986-87 school year BCPS reported a high school dropout rate of 5.51%. However, due to inconsistent definitions of dropouts and inconsistent methods used to compute the dropout rates these reported rates should not be compared.

Researchers have documented that the dropout will experience more difficulty obtaining a job, will be employed in a job that is less satisfying than that of a high school graduate, will earn less than a high school graduate, and will not be as academically able as the high school graduate (Gainer, 1986; Pallas, 1984; Rumberger, 1987; USDE, 1987). Dropping out of school has also been found to negatively affect society within the areas of welfare, criminal justice, public health and an overall reduction of our national revenue (Gainer, 1986; Lyke, 1986; Pallas, 1984; Rumberger, 1987; USDE, 1987). It has been estimated that today's dropouts are costing our society approximately \$145 billion each year. Most surveyed dropouts have indicated that leaving school was a poor decision and some do return to school (Gainer, 1986; USDE, 1987).

Factors Related to Dropping Out

Researchers have identified a wide range of factors that have been associated with dropping out. Dropout rates are higher for male students, racial/ethnic minorities, and for persons from lower socioeconomic backgrounds. Dropouts tend to obtain low grades, be below grade level academically, be older than the average student at their grade level because of previous retention and often demonstrate behavior problems in school before they drop out. The student at risk of dropping out therefore has a fairly well-defined profile which can be identified before he or she leaves school. However, although many high-risk students do drop out, others continue until they graduate. There is a need for additional research to investigate factors which influence the dropout rate for specific groups of high risk students.

In a recent review of dropout research Rumberger (1987) identified six major categories of factors. The categories are demographic, family-related, peer, school-related, economic, and individual. Within each of these categories there is a large number of specific factors. Utilizing Rumberger's categories and drawing from a wide variety of research on specific factors, the researcher has developed an outline of various factors which have been associated with dropping out. The factors are as follows:

1. Demographic

Race

Ethnicity

Gender

2. Family Background

Socioeconomic status

Educational level of parents

Occupational level of parents

Family income

Speaking a language other than English in the  
home

Family structure (size; single-parent families)

Household possessions

Amount of learning materials in the home

Geographic location

3. Influence of Peers

Friend's educational aspirations

Friends were dropping out

Expectations of friends

Ability to get along with peers

4. School-Related Factors

Academic achievement

Grades

Test scores

Retention

Frequent absence and tardiness

Discipline problems

Type of school program

Influence of teacher

Teacher interest in student  
Influence of schools  
Involvement with extracurricular activities  
Frequent changes of schools

5. Economic

Local employment conditions  
Student's desire for employment  
Number of hours worked

6. Individual Factors

Self-esteem  
Locus of control  
Attitude about school  
Educational and occupational aspirations  
Marriage  
Pregnancy  
Sociability  
Ability  
Anxiety  
Immaturity  
Poor health

An investigation of the literature reveals that the high school student may withdraw from school as a result of any number of influential factors. The decision to drop out is complex, and the factors that affect that decision are diverse. This review will center attention on the following factors: race/ethnicity, gender, academic achievement, and retention.

### Demographic and Family Background Factors

Dropout rates vary widely among social groups. Rumberger (1987) has specified that, "Dropout rates are higher for members of racial, ethnic, and language minorities, for men, and for persons from lower socioeconomic status" (p. 108). This assessment of the variations among social groups is supported by most of the research in the area. Ekstrom, Goertz, Pollack, and Rock (1986) found that

the two background characteristics that are most strongly related to dropping out are socioeconomic status (SES) and race/ethnicity. Students of lower socioeconomic status have been consistently shown to have higher dropout rates than high socioeconomic status students. Dropout occurs more often among Hispanics than among blacks, and more often among blacks than whites. Other background factors associated with dropout include coming from a single-parent family, coming from a large family, and living in the South or in a large city. (p. 53)

Gainer (1986) reported that data from the High School and Beyond study sponsored by the National Center for Education Statistics showed that 13% of the white youth, 17% of the black youth, and 19% of the Hispanics dropped out of the sophomore 1980 sample. The data also showed that the dropout rate for youth from households with low-income, low-skill wage earners and limited educational backgrounds was about three times the rate of those from the highest end of the socioeconomic scale. The data in the study were drawn from a stratified national probability sample of about 30,000 high school sophomores who attended about 1,000 public and private high schools in 1980.

Gainer (1986) also reported that data from the National Longitudinal Surveys of Labor Market Experience (1979-82) showed that about 15% of whites, 17% of blacks and 31% of hispanics failed to complete high school. It should be remembered that there is no single reliable measure of the national dropout rate. Different definitions and procedures to count the number of dropouts make it difficult to compare dropout rates for specific groups of students.

School districts also differ in the procedures they use to define dropouts and calculate rates. Data from the BCPS indicated that the dropout rate in 1986 for white students was 5%, 7% for black students and 4% for Hispanic students. The data also indicated that the total senior high dropout rate was 5%. It should be noted that 58% of the dropouts were males and 42% of the dropouts were females. The 1985-86 Beach County data are not consistent with the national dropout trends in reference to the percentage of dropouts within specific race/ethnic groups. Within Beach County, white students dropped out more often than hispanic students.

Much of the recent research on dropouts has included race and sex along with other variables in order to determine the influence of specific factors on the decision to drop out. By utilizing this type of process it has been found that race and sex alone do not account for as much variance in the dropout decision as one would expect.

Rumberger's (1983) study provides an excellent example of this process. Rumberger (1983) investigated how family background operated differently for members of various race and sex groups. He found that family background was a powerful predictor of dropout behavior. Students from a lower social class background were much more likely to leave school prematurely than students from high social origins. Rumberger specified that, "Family background strongly influences the propensity to drop out of school and accounts for virtually all the racial differences in dropout rates" (p. 199). He found that family background influenced the probability of dropping out for members of all race and sex groups.

Rumberger (1983) developed a model in which the dependent variable represented the likelihood of dropping out of school. Since the dependent variable was dichotomous, probit regression techniques were employed to help determine the effects of the independent variables. The reasons students cited for leaving school were obtained from a national sample. The reasons varied widely, with men more likely to leave to go to work, and women more likely to leave because of pregnancy or marriage. Almost one-half of all dropouts cited school-related reasons for leaving school. Twenty-nine percent indicated that they disliked school. As noted above, family background accounted for virtually all the racial differences in the dropout rates. Wehlage and Rutter (1986) also determined

that after controlling for family background, race was not a variable that predicted dropouts.

One limitation of Rumberger's (1983) study was that the student's academic achievement was not considered in his model. Pallas (1984) discovered that when academic achievement and SES were controlled, black and hispanic students dropped out of high school less frequently than whites. Pallas concluded that the student's poor academic preparation and the disadvantaged backgrounds of minority youngsters accounted for their lower rates of high school completion. Schulz et al. (1987) found that whites were as inclined as blacks and hispanics to drop out when differences in their reading achievement and their high school entry age were controlled.

Schulz et al. (1987) found that males are much more likely to drop out of school than females. It was also found that the differences between the male and female dropout rate was not as great among whites as it was among other races. Rumberger (1983) found that women reported that they were more likely to leave because of pregnancy or marriage and men were more likely to leave to go to work. Rumberger concluded that parenthood at a young age affected the likelihood of a woman finishing high school much more than it affected a young man. Pallas (1984) proposed that the concept of accelerated role transition explained why parenthood and marriage were associated with higher rates of high school dropout for females than for males. The

concept also explained why working for pay was more highly associated with dropping out among males than among females. Russell (1985) reported that psychological differences have been found in male and female dropouts. Female dropouts were found to have lower levels of self-esteem, were less likely to be extroverted, and were more influenced by teachers. Males were more extroverted, self-interested, fatalistic, less conventional, and less conforming in school.

In summary, dropout rates are higher for racial/ethnic minorities, males, and for persons from lower socioeconomic backgrounds. Rumberger (1983) found that family background accounted for racial differences in the dropout rates of various groups of students. Pallas (1984) found that when academic achievement and SES were controlled, black and hispanic students dropped out of high school less frequently than whites. Schulz et al. (1987) discovered that whites are as inclined as blacks and hispanics to drop out when differences in their reading achievement and their high school entry age were controlled. Women reported that they were more likely to leave because of pregnancy or marriage. Men reported that they were more likely to leave for the purpose of earning a salary. Psychological differences have also been found in male and female dropouts.

#### School-Related Factors

School-related factors such as academic achievement levels and retention decisions have been associated with

dropping out. School-related factors are of particular interest because many of them are viewed as alterable and can, therefore, be manipulated by practice, policy and instructional efforts. It has been proposed by Schulz et al. (1987) that future educational research on dropouts should focus on alterable factors that can be adequately influenced by the school system. Background factors such as race, sex, and SES are not viewed as being alterable by educators.

It has been well-documented that poor academic achievement in school is associated with dropping out (Ekstrom et al., 1986; Greene, 1966; Pallas, 1984; Schulz et al. 1987; Wehlage & Rutter, 1986). The achievement of dropouts has been found to be significantly lower than that of graduates. Wehlage and Rutter found that poor school performance, leading to low grades and course failure, was associated with dropping out. They found that academic test scores accounted for 29% of the variance, and grades accounted for 22% of the variance between groups of drop-outs and graduates. Pallas found that academic achievement was the most significant predictor of dropping out. Academic achievement outweighed the other background factors considered, including family background. Pallas found that when academic ability and SES were controlled, blacks and hispanics dropped out of high school less frequently than whites. Pallas concluded, "Apparently, then, the poor academic preparation and disadvantaged

backgrounds of minority youngsters account for their lower rates of high school completion" (p. 204). Pallas also found that high school grade performance, self-reported in-school delinquency, truancy, full-time work involvement, and dating behaviors were especially important factors and contributed uniquely to the probability that a student would drop out.

Pallas (1984) used linear logistic regression techniques to estimate the effects of academic performance, social disability, and accelerated role transitions on dropouts and graduates. He used data from the High School and Beyond study. His sample was nationally representative of high school sophomores in 1980 who were surveyed initially in the spring of their sophomore year and then followed up two years later. Pallas was critical of drop-out research which lacked suitable measures of academic ability. He indicated that very little faith should be put in research results which lack suitable controls for students' academic competencies. Pallas found that

the total effects of ability, age and socioeconomic status on dropout are substantial, even when other factors are controlled. Less able students, older students, and disadvantaged youth all were more likely to leave high school before completion. The effects of academic ability are largest, outweighing the other background factors considered. (p. 204)

Pallas presumed that youths who do poorly in academics come to dislike school. He believed that students then dropped out to avoid school and aversive classroom situations.

Ekstrom et al. (1986) found similar, yet somewhat different, results than Pallas (1984). Ekstrom et al. (1986) also analyzed the data from the High School and Beyond study in order to determine how the achievement and attitudes of high school dropouts differed from those of teenagers who chose to stay in high school. Ekstrom et al. (1986) found that dropouts were disproportionately from low SES families and racial/ethnic minority groups. It was also found that dropouts were more likely to be older, to be males rather than females, and to attend public schools in urban areas in the South or West. Ekstrom et al. (1986) reported that, "Dropouts exhibited different school behaviors. They had lower school grades and lower test scores, did less homework, and reported more disciplinary problems in school" (p. 54). It was also found that the dropouts had lower sophomore-year scores on all of the achievement tests than the persisters. The mean score differences were smallest in science and largest in mathematics. The dropouts were more likely to report behavior problems in school, and they appeared to feel alienated from school life. They reported lower levels of participation in most extracurricular activities and felt less satisfied with their education.

Ekstrom et al. (1986) were particularly interested in discovering why one student rather than another dropped out. They found that students with low grades were more likely to drop out and that poor mathematics skills, as

measured by sophomore-year achievement tests, were related to dropping out. Ekstrom et al. (1986) concluded that school performance, as measured by grades, and the extent of behavior problems was significantly related to dropping out. They reported, "It is clear that having behavior problems and having low grades are the major determinants of dropout" (p. 63). They found that grades and behavior problems appeared to be determined, in part, by the home educational support system. They also found that, "regardless of ethnicity, gender, or curriculum choice, staying in school increases achievement gains in all tested areas" (p. 67). Ekstrom et al. (1986) believed that their findings had significant implications for the development of school policies, and they indicated that no single program or policy can meet the needs of the diverse dropout population. They recommended specific types of programs for specific types of high-risk students.

A study conducted by Schulz et al. (1987) provides an excellent example of research conducted on the school district level. The sample consisted of freshmen students from the Chicago public high schools. Students with missing data were deleted from the study, and the sample included only students who had either graduated or dropped out. The study focused on school-related factors which were believed to be alterable by educational policy and practice. The researchers indicated that reading achievement and age upon entry to high school could be affected by

system-wide policies and by specialized dropout prevention programs. The researchers also included the factors of race and sex in their study; however, those factors were treated differently because they could not be altered. Schulz et al. (1987) specified, "Only by directing the search for alterable, underlying variables, can the association of race or gender with dropout rates be of any practical value in dropout prevention" (p. 90).

Schulz et al. (1987) utilized loglinear and multiple regression programs to assess the association between student attributes and dropout rates in their sample. The researchers found that most of the variation in the dropout variable was accounted for by reading achievement, entry age to high school, and the interaction of these variables when entered first into the regression equation. They accounted for over 80% of the predictable variance in the dropout variable. The F-values for their effects were highly significant ( $p < .0001$ ). Gender and race also accounted for significant amounts of variance in the dropout variable (20%). In general, males were more likely to drop out than females. The dropout rate was 47% among hispanics, 45% among blacks and 34% among whites. Schulz et al. (1987) concluded that, "Reading achievement and entry age, in contrast to race and gender, can account for most of the predictable variation in students' dropout rates" (p. 97). They also concluded that whites are as inclined as blacks and hispanics to drop out when differences in

reading achievement and entry age are removed. The researchers indicated that, "the dropout rate among Blacks and Hispanics could be as low as that of Whites if the reading achievement of these minority races could be made comparable to that of Whites, and if their entry to high school were accelerated" (p. 97).

Rumberger (1983) has indicated that early retention in primary grades has been used to predict dropping out. Numerous researchers have indicated that students who were older than their schoolmates had higher rates of school dropout than their younger peers (Brady, 1985; Ekstrom et al. 1986; Pallas, 1984; Schulz et al., 1987). Brady (1985) reported that grade retention had a significant influence on persistence for all students, but was twice as predictive for black students. Grade retention was found to be strongly influenced by a student's ability level, and was a significant determinant of dropout for all students. Brady also reported that it has been estimated that as many as 50% to 80% of dropouts have been retained in a grade at least once.

Schulz et al. (1987) found the dropout rate of over-age students to average about 13% points higher than the dropout rate of normal-age students with the same reading skills. The increase in dropout potential with entry age was greater among blacks than among other races. Schulz et al. (1987) concluded that, "the retention of students in primary grades increases the dropout rate at the high

school level. Over-age students are far more likely to dropout than normal-age students" (p. 98). As a result of their findings, the researchers recommended dropout prevention policies that excluded retention and increased students' reading skills before they entered high school. They also recommended that students enter high school at an earlier age.

The retention of primary grade students with inadequate academic skills is one policy that will affect the students' chances of completing high school. Students are often retained in school to increase their academic skills; however, their age upon entry to high school increases as well. Researchers have indicated that the dropout rate tends to increase with high school entry age for the general population.

School-related factors that have not received much attention are the influences of the schools themselves on the dropout rate. Rumberger (1987) has suggested that factors such as school organization, leadership, quality of teachers, and school facilities need to be investigated in order to better understand their influence on the student dropout rate. Toles, Schulz, and Rice (1987) have found that the characteristics of the high school did affect its dropout rate even when the differences in student populations were controlled for. Results from their study indicated that most of the schools with high dropout rates were schools with high poverty indexes. In order to obtain an

unbiased ranking of school performance, they corrected the observed dropout rate by removing the effects of student attributes. They were then able to better identify which schools had a positive, neutral or negative effect on dropout rates. A school's or program's influence on its students' dropout rate should be considered when we attempt to consider the quality of an educational program. Wehlage and Rutter (1986) have specified that "This holding power ought to be part of our definition of school excellence in a democratic society, where schools are to serve all of its citizens, not just the academically agile" (p. 72).

#### Individual Factors

Intellectual ability is an individual student factor which has been associated with dropping out. Most of the researchers tend to indicate that dropouts had, on the average, lower intelligence test scores than did persisters (Brady, 1985; Greene, 1966; Rumberger, 1983; Russell, 1985). Brady specified that intellectual ability was found to be an important influence on persistence for all students. Results also suggested that a significant number of qualified students left school without obtaining a degree. However, Brady concluded that in general, dropouts tended to have less ability than persisters.

A research review of gifted (high-ability) students was conducted by Lajoie and Shore (1981). Within this review the authors concluded that research findings suggested that the proportion of gifted dropouts may be equal

to the average dropout rate. It was estimated that the gifted students were at least equally represented among dropouts. French and Cardon (1966) discovered that 10% of all high-ability students withdrew from school without graduating.

#### Summary

All of the reported findings, thus far, with the exception of Lajoie and Shore (1981) and French and Cardon (1966) have been based on student samples which were designed to represent the total high school population. However, there is a growing belief by experts in the field that there are different types of dropouts and they leave school for different reasons. There is no typical dropout. Students of various abilities dropout from all social-economic levels. The causes and the nature of dropping out are different for specific types of students. It has been suggested that these differences should be explored further and the results should then be used to develop separate conceptual models of dropping out for different types of students (Ekstrom et al., 1986; French & Cardon, 1966; Rumberger, 1987; Schulz et al. 1987). It has also been suggested that researchers should attempt to discover the factors related to dropping out for specific groups of students and determine their relative influence. There should also be a focus on alterable student characteristics that can be influenced through program policy interventions (Schulz et al., 1987; Wehlage & Rutter, 1986). Once the

causes of dropping out and their relative influences are understood for specific groups of students, effective educational interventions can then be developed. The results would also help identify potential dropouts at an early age, when the interventions would hopefully be most effective.

In summary, the factors which contribute to a student's decision to dropout of school are complex and interrelated. A wide range of factors have been associated with dropping out. Dropout rates are higher for male students, racial/ethnic minorities, and for persons from lower socioeconomic backgrounds. Dropouts tend to obtain low grades, be below grade level academically, older than the average student at their grade level, and often demonstrate behavior problems in school. However, no one really knows for sure what causes specific students to drop out of high school. Many high-risk students do drop out; however, many continue to persist until they graduate. There is a need to conduct additional research to investigate factors which influence the dropout rate for specific groups of high-risk students. Only by focusing our attention on alterable factors which can be influenced by school policy and practice can educators hope to develop effective prevention programs.

#### Programs for Dropouts

Many programs have been developed and implemented for dropouts. However, the literature generally indicates that

educators do not really know what works in terms of specific interventions to prevent youth from dropping out of school, encouraging their reentry, or recruiting and retaining them in second chance employment and training programs (Adams, 1986; Greene, 1966; Gainer, 1986, 1987; Mann, 1986; USDE, 1987; Wehlage & Rutter, 1986). This is partially related to the limitations of data available on programs, definition problems, and limitations in research and evaluations in which the effectiveness of particular approaches have been investigated. Researchers have found some interventions to be unsuccessful, and they have found other specific interventions to be successful. This section of the literature review will focus on specific program characteristics and interventions that have been developed to prevent youth from dropping out of school. It is generally believed that the characteristics of effective dropout prevention programs include small class size with a low student-teacher ratio, responsive teachers, individualized personal attention to student's academic and social needs, basic skills instruction, an emphasis on the immediate and practical, rewarding of student achievement, early intervention, parental involvement, staff development and training, employment of computers, and high student expectations (Adams, 1986; Dropouts: Who, 1986; Greene, 1966; Gainer, 1987; Wehlage & Rutter, 1986).

The dropout problem is not a simple one that can be treated with simple solutions. As the reported variety of

significant related factors reveals, the problem is complex. It requires multiple solutions for specific groups of students. A student may quit school because of the compound impact of a variety of factors such as having been held back in the third grade, inability to read, receiving poor grades, being poor, and finally having an argument with the vice-principal. Mann (1986) has indicated that, "These young people need a range of things, just as any system's at-risk population will need services that fit their hurts. If the problem is complex, so will be the solutions" (p. 7). Rumberger (1987) specified that the tendency to drop out begins early in a student's life, and attempts to combat the problem should therefore be initiated at an early age as well.

Mann (1986) has indicated that the dropout rate has been 25% for the past thirty years. He points out that, "When an indicator is that sticky...it says something about the power of the interventions being applied. Despite the amazing array of things that have been and are being tried, no one should talk about solutions" (Mann, p. 7). An example of the variety of interventions which are being attempted is provided by a partial listing of programs for at-risk students which are specified within the Beach County district comprehensive dropout prevention plan: Preschool Handicapped Program, Exceptional Education Programs, Primary Education Programs, Chapter I, Compensatory Education, English for Speakers of Other

Languages, Bilingual Programs, Substance Abuse Program, Advisor/Advisee Program, Migrant Education, Educational Alternative Programs, and Teenage Parent Programs. This list is incomplete and indicates some of the system-wide services which are available for at-risk youngsters. However, we do not really know if these programs are working to help prevent students from dropping out. Mann has indicated that knowing what works requires knowing what was done, to whom, and with what effect.

#### Program Evaluation

Mann (1986) has suggested that an evaluation framework should be developed in order to determine effectiveness and to capture differences among programs that may be related to differences in outcomes. In 1950, Ralph Tyler proposed the objectives/outcomes evaluation model in which the student's behaviors were related to the stated purposes and objectives of the program. One assumption of the model was that the educational program could directly influence the students' behavior to be congruent with educational objectives. Hill (1986) has indicated that the model also assumed that, "the ends of learner outcomes of a program are the best measure of a program's effectiveness" (p. 58). The educational objective of retaining students in school should be considered for all programs and must be considered when evaluating the effectiveness of a dropout prevention program. Wehlage and Rutter (1986) have indicated that this "holding power" ought to be part of our

definition of an excellent school or program. Wehlage, Rutter, and Turnbaugh (1987a) have reported that the evaluation of any program for at-risk students should involve the use of several criteria. Wehlage et al. (1987a) indicated that special efforts with at-risk students should result in at least the reduction of in-school failure and a corresponding reduction in the dropout rate. Mann has specified that, "The categories most often used for the analysis of curriculum require data about objectives, learner diagnosis, program content, program delivery, resources, and pupil progress evaluation" (p. 8).

A large variety of programs are being implemented to help reduce the dropout problem. However, we have very little reliable data about the effectiveness or the holding power of those programs. One of the program evaluation problems is that we cannot even agree on what constitutes a dropout. Rumberger (1987) has stated, "currently, local and state education agencies employ widely different methods for defining dropouts" (p. 105). In 1965, the National Education Association's Project on School Dropouts directed by Daniel Schreiber stressed the need for a uniform definition of a dropout in order to facilitate record-keeping and research on the national, state and local levels. More recently, Gainer (1986) recommended the use of a standard definition for dropouts and uniform collection and reporting procedures. As Gainer (1987) pointed out, "Such changes also would help measure the effectiveness of programs in reducing the number of dropouts"

(p. 39). Since 1965, efforts have been directed at obtaining a uniform method to define dropouts and to calculate the dropout rate; however, as previously mentioned, there are still wide variations. Gainer (1987) went so far as to specify, "The availability of standardized data is a prerequisite for measuring the relative effectiveness of dropout programs" (p. 38).

#### Characteristics of Effective Programs

Despite program evaluation methodology problems, significant efforts have been made at determining the characteristics of an effective dropout prevention program. Most recently the U.S. General Accounting Office, under the direction of William Gainer (1987), surveyed directors of local school dropout programs to identify the approaches being used to prevent students from dropping out of school, and to obtain their views about program elements important for effectiveness. The results of the survey provided information about programs that local administrators perceived as effective. Most of the local administrators indicated that the primary objective of their dropout programs was to improve youth's academic performance and to change their attitudes toward school. Most programs provided basic education and personal counseling. About 75% of the programs encouraged parental involvement, and about 70% offered assistance in searching for a job and in obtaining social services such as health care. Approximately 62% provided job skills training. About half helped

youth prepare for a General Education Development (GED) high school equivalency certificate and more than one-fifth of the programs offered child day-care services.

Gainer (1987) also found specific program elements as being strongly influential in reducing dropouts. These elements were: a caring and committed staff, a safe and secure learning environment, individualized instruction, small class size with low student-teacher ratios, and support services and school hours that were responsive to individual student needs. The survey indicated that about three-fifths of the programs conducted at least some of their activities in the regular public school, and roughly the same proportion reported providing services in an alternative school setting. Gainer (1987) did not prescribe a specific program model due to the fact that specific groups of at-risk students and specific localities had unique program needs. He also recognized that there was a lack of definitive data proving program effectiveness. However, Gainer (1987) did conclude that effective dropout prevention programs must offer multiple services such as: basic education, counseling, a caring and committed staff, a safe and secure learning environment, personalized instruction, a low student-teacher ratio and program flexibility. Gainer (1987) also indicated that there was a need for more services in the earlier school years.

Adams (1986) examined 70 prevention programs within the New York State region in order to determine a framework

of program elements that resulted in effective programs with good holding power. Adams found predominately short-term programs that addressed at-risk students in school performance in the areas of achievement, behavior, and attendance. The programs were generally geared towards 9th-12th grade with a heavy reliance on guidance personnel and the programs had limited evaluation practices. Adams reported evaluation difficulties which were related to the absence of a standard data set between programs. Adams also emphasized that an effective program must be responsive to the specific needs of the community and to the students.

Adams (1986) discovered a common set of components which were associated with effectiveness among the dropout programs. The components included: small classes, individualized instruction, programs based on student needs, teacher understanding, high student expectations, and provisions for community involvement. As a result of the study it was recommended that effective prevention programs should include staff development and training, parent involvement, early identification, comprehensive programs K-12, individual curricula and instructional approaches, employment of computers and school/community partnerships. Adams concluded

if we allow it, the dropout prevention movement could provide an impact within our educational structure by providing models for recognizing that every student is in some way special and therefore requires some individual planning,

based on assessment of the student's work, consultations among teachers, and continuous dialogue between school personnel and the student's parents. (p. 97)

In a review of the effectiveness of several major national programs for dropouts, Gainer (1986) found that most of the evaluated programs were unsuccessful. It should be noted that most of the programs reviewed were for students who had already dropped out of school. However, the Youth Incentive Entitlement Pilot Projects (Entitlement Projects) were developed as dropout prevention programs. The program guaranteed minimum-wage jobs, part-time during the school year and full-time in the summer, on the condition that the youth remain in high school. Gainer (1986) concluded that the program had no impact on the school's holding power. However, the program did increase youth's earnings for a short period of time following the program completion. Gainer (1986) concluded the review by specifying that, "it is not generally known what works in terms of specific interventions to prevent youth from dropping out of school or to encourage their reentry" (p. 34).

Wehlage, Rutter & Turnbaugh (1987b) have developed a model program for at-risk high school students which they report works. Their research has produced a general model for alternative programs of the school-within-a-school or alternative school type. The characteristics of their program consists of the following four categories: administration and organization, teacher culture, student culture and curriculum. Essentially, in the model, a

small-size program is specified in which the teachers are able to communicate a sense of caring and are also able to personalize and individualize their instructional efforts. The program is autonomous in that it is run by a small group of teachers. The administrators create a program identity by having separate space and facilities. A teacher culture is developed in which there is professional accountability for the success of the adolescent served. A student culture is developed in which there is a family atmosphere of cooperative learning. The administrators assume that the curriculum and teaching will be individualized. It is specified that clear objectives, prompt feedback, concrete evidence of progress, and an active role for students are some of the dominant features of the model. The researchers have also indicated that, "The level of skills mastery on the part of students dictates where teachers begin" (p. 156). Planned experiential learning is provided to help improve student's social skills and attitudes.

Researchers have indicated that a vital aspect of any effective program is having responsive and caring teachers working with their students (Adams, 1986; Brady, 1985; Gainer, 1987; Greene, 1966; Mann, 1986; Schreiber et al., 1965; Wehlage et al., 1987a, 1987b). The teachers need to accept the students as unique individuals and allow for differentiated student goals. No amount of organizational and/or curriculum change will be of any value unless the

teachers are humane, sympathetic, and sensitive to the needs of their students. Greene specified

the teacher is the key to the dropout problem. ...No organizational change can force the teacher to behave differently; it only changes the structure of the classroom. The teacher alone, when he is in the classroom behind closed doors, is the only person who can really reduce the dropout rate. (p. 155)

Wehlage et al. (1987b) specified that schools need to respond to the unique background conditions of their students. Wehlage et al. (1987b) wrote

schools are not likely to help at-risk students unless they can change fundamental school-student interactions. For educators, the reform agenda requires a major effort to engage those who have become alienated. Reversing the alienation begins with the establishment of a positive social bond between teachers and students. (p. 156)

Wehlage et al. (1987a) reported that the evaluation of any program for at-risk students should involve the use of several criteria. They indicated that special efforts with at-risk students should result in at least the reduction of in school failure and a corresponding reduction in the dropout rate. The evaluators reported an expectation of increased student skills in reading, writing, and computing. The evaluators reported that an effective program should reduce truancy, school disruptions and student resistance to the efforts of adults. In addition, Wehlage et al. (1987a) reported that effective intervention should have a positive effect on several personal and social orientations of the students such as self-esteem and social bonding to teachers. It is interesting to note when

Wehlage et al. (1987a) were evaluating their own model program they apparently did not consider the reduction of school failure, the program's holding power, or the changes in the student's academic skills. Instead, they determined program effectiveness by the degree of change in the student's personal and social orientations.

In addition to the development of model programs and program surveys, research on the factors related to drop-outs has produced much information which is useful in the development of an effective dropout prevention program. Rumberger (1983) found that students' backgrounds affected their decision to dropout. He, therefore, recommended that the schools should start early and provide programs designed to overcome initial disadvantages associated with poor social origins. Pallas (1984) found that students' poor academic skills were the most important factor which influenced dropping out. Pallas therefore recommended that students' academic skills should be directly enhanced in an effective dropout prevention program. Ekstrom et al. (1986) found that behavior problems, low grades, and math achievement were major factors related to dropping out. Ekstrom et al. (1986) specified that it is important to begin dropout interventions prior to high school and as soon as behavioral signs such as poor grades and/or disciplinary problems begin. Schulz et al. (1987) found that reading achievement and age upon entry to high school were related to dropping out. They felt that the school should

focus on alterable student factors that could be affected by school policy and interventions. Schulz et al. (1987) recommended dropout prevention policies that would increase students' reading achievement before entry to high school, without retention, and they recommended policies that would promote the entry of students into high school at an earlier age.

#### Summary

In summary, researchers do not yet really know what type of program is most effective in preventing youth from dropping out of school. However, dropout experts do agree on specific program characteristics which are believed to be beneficial. It is recognized that an effective program must meet the unique needs of the students it serves, and it must relate to the specific needs of the community. Teachers who work directly with the at-risk youngsters are viewed as the key to an effective program. Teachers who accept students as unique individuals, allow for differentiated student goals, and are responsive and caring to students' needs have been found to be most effective (Wehlage et al. 1987a). It is generally believed that characteristics of effective dropout prevention programs also include small class size with a low student-teacher ratio, basic skills instruction, an emphasis on the immediate and practical, rewarding of student achievement, early intervention, parental involvement, staff development and training, employment of computers, and high student expectations.

### Exceptional Education Services

Exceptional education has a long history of providing special services for students who have demonstrated difficulties adapting to the regular school programs. According to the Education of the Handicapped Act (EHA), each handicapped child has a right to a free and appropriate education. Exceptional education programs have many of the same characteristics associated with effective dropout prevention programs, and students who are placed into exceptional education often have demonstrated similar characteristics to those of at-risk students. In many cases the only difference between the SLD student and the underachieving student may be the exceptional education services. However, researchers have found that the factors which were related to dropping out in SLD students were not the same factors that were related to dropping out among nonhandicapped populations. The available research has indicated that, in general, exceptional education students (excluding the gifted) were dropping out at a rate which was higher than that of the nonhandicapped students, and gifted students were dropping out at a rate that was proportionate to that of nonhandicapped students.

### History of Exceptional Education

Exceptional education services developed slowly in the United States public schools. Limited financial resources and public apathy combined to prevent an equal educational opportunity to the handicapped until relatively recently.

During the 1940s through 1960s, several states funded programs and provided services for some of their handicapped. However, such efforts were not comprehensive and failed to address the special needs of most handicapped children. Alexander and Alexander (1985) have indicated that it was not until the latter part of the 1960s and early 1970s that public concern resulted in improved programs in public schools for the handicapped. Equality of educational opportunity was provided by a few key court decisions and the federal government's legislation in 1975 entitled Education for All Handicapped Children Act, commonly referred to as Public Law 94-142 (PL 94-142). Since that time, comprehensive exceptional education programs have been provided in all states. Exceptional education and related services are now being provided to more than 4 million children or more than 9.5% of the students enrolled in schools (Algozzine et al., 1983).

Court decisions such as Pennsylvania Association for Retarded Children v. The Commonwealth of Pennsylvania in 1972 and Mills v. The Board of Education of the District of Columbia in 1972 led to the rulings that specified that no handicapped child could be excluded from a regular public school unless the district was prepared to finance the child's education with special classes, private schools, or with tutors (Bryan & Bryan, 1979). In the Mills decision, which included all handicapped children, the court adopted a comprehensive plan that included

provisions for a free appropriate education, an individual educational plan (IEP), and due process procedures (Alexander & Alexander, 1985). Federal legislation, such as Section 504 of the Vocational Rehabilitation Act in 1973 and PL 94-142 in 1975, assured the rights of all handicapped children to a free and appropriate public education. PL 94-142 provided federal funds to states which complied with its provisions. It has been revised several times since 1975 and is now commonly referred to as the Education of the Handicapped Act (EHA).

To insure handicapped children basic educational rights, PL 94-142's provisions included assurances of a free and appropriate public education, an IEP, special education services, related services, due process procedures, and the least restrictive environment in which to learn (Alexander & Alexander, 1985). Schools were required to consult with parents when they developed a student's IEP, and the student's IEP was required to be reviewed annually to determine the effectiveness of the program. Kimbrough and Nunnery (1983) have indicated that in addition to financial support, one of the major policy directives of PL 94-142 was that

each handicapped child has a right to a free and appropriate education. The impact of this is that intensive and continuing effort must be made to locate handicapped children; a careful assessment must be made of the educational needs of each; educators in collaboration with parents or guardians and, when possible, the child, must develop an "individualized education plan" (IEP) for each child; and each child must be provided educational services consistent with the IEP. (p. 109)

Presently, exceptional education services is one alternative available to at-risk students who are experiencing difficulties within their educational environments. It is listed as one of the available programs for at-risk students within the Beach County district comprehensive dropout prevention plan. Algozzine et al. (1983) have indicated that

schools are institutions established by society to instill in children its beliefs and knowledge base. It is clear that either schools fail to educate significant numbers of students, or significant numbers of students fail to profit sufficiently from schooling. A variety of approaches have evolved as methods for helping schools cope with the failure of America's children; special education is but one of these alternatives. (p. 141)

#### Program Similarities

The federal government currently provides funds to states for the purpose of providing special services to children who are identified and staffed into exceptional education programs. Within the EHA there are very specific guidelines for classifying students into specific programs and for determining what services should be provided. It is mandated by law that an IEP will be developed for each student. The IEP is reviewed annually to determine its effectiveness and parents are consulted when the plan is reviewed or changed. In practice, the plan is to be based on the specific student's needs, and the student is then evaluated on his or her progress on the program which was developed. Therefore, the program provided is individualized, designed to be relevant to the needs and interests of

the students. In addition, exceptional education services are typically provided to small groups of students with low student-teacher ratios.

Exceptional education programs contain many of the same characteristics which are associated with effective dropout prevention programs. Characteristics common to both successful dropout prevention programs and exceptional education programs include small class size with a low student-teacher ratio, individualized personal attention to students academic and social needs, responsive teachers, basic skills instruction, rewarding of student achievement, early intervention, and parental involvement. Specific exceptional education programs may also provide an emphasis on the immediate and practical, job skills training, staff development and high student expectations. Several programs can even provide some flexibility on the criteria required for a student to graduate from high school.

#### Student Similarities

In addition to similar program characteristics between exceptional education and dropout programs, students who are placed into exceptional education programs often have demonstrated similar characteristics to that of the at-risk student prior to being staffed into a specific exceptional education program. School dropouts tend to obtain low grades, be below grade level academically, be older than the average student at their grade level because of previous retention, and often demonstrate behavior problems in school before they drop out.

It would not be uncommon to place a student who was below grade level, and demonstrating school behavioral problems, into one of several exceptional education programs depending on the severity of the particular problems, the student's educational and home histories, and the student's psycho-educational profile. For example, students who are identified as having a Specific Learning Disability (SLD) often demonstrate weak academic skills and obtain low grades prior to their placement within the Exceptional Education program. In addition, they may have been retained in school and they may have demonstrated behavioral difficulties in school prior to their placement. There is also considerable evidence which suggests that the SLD category is primarily one of underachievement (Ysseldyke, Algozzine, Shinn, & McGue, 1982). Researchers have indicated that the only difference between the SLD student and the underachieving student may be that the SLD student receives the exceptional education services (Ysseldyke et al., 1982).

There are many different exceptional education programs and services available. However, there are four programs that provide services to students who possess characteristics which appear to be related to many of the typical characteristics of a school dropout. Three of these exceptional student types have demonstrated behaviors which are similar to the typical characteristics of a school dropout. The fourth type of exceptional student has

demonstrated characteristics which appear to be negatively correlated to the characteristics of the typical school dropout. The three programs which provide services to students who appear to be similar to the typical dropout are SLD, emotionally handicapped (EH), and educable mentally handicapped (EMH). In contrast, the gifted program was developed for students with characteristics which appear to be negatively correlated with the characteristics of a school dropout.

#### Effectiveness of Services

Despite the obvious similarities between the students who are at risk of dropping out of school and the students who are staffed into specific exceptional education programs such as SLD, EH, and EMH there has been very little research on the effectiveness of exceptional education as a dropout prevention program. The results of a recent longitudinal study of student dropout rates have indicated that students who were participating within exceptional education programs (excluding the gifted program) dropped out of school at a rate that was higher than the regular student rate (Stephenson, 1987). However, the study did not consider the dropout rates of specific exceptional education programs.

Several researchers have investigated the dropout rates of students within specific exceptional education programs. For example, Zigmond and Thornton (1985) found that over 54% of SLD students did not finish high school in

a large northeastern urban school district. Within their study nonhandicapped peers dropped out at a rate that was significantly less (32.8%). A follow-up of EMH students in the same school district during the same time period found their dropout rate to be as high as that of the SLD students. One limitation of the Zigmond and Thornton study is that they utilized a relatively small number of subjects in their investigation which may not have been representative of the school district.

In another example, Baldwin (1986) found in a program evaluation study that the SLD and EMH dropout rates were about twice as high as the regular student dropout rate during the 1984-85 school year. In addition, Baldwin found that the dropout rate for EH students was about three times as high as the regular population's rate. It was found that the total high school population, including exceptional education students, dropped out at a rate of 6.3%. The dropout rate of EMH students was 12%, SLD students dropped out at a 12.9% rate, and EH students dropped out at a 17.6% rate. For all three exceptionalities the dropout rate was higher than for the total high school population. Within this study the gifted dropout rate was not computed and there were some inconsistencies in the computation of the various dropout rates.

A research review of gifted student dropout rates conducted by Lajoie and Shore (1981) revealed that the most common reasons reported for dropping out of school were as

applicable to gifted students as to other students. The researchers' findings suggested that the proportion of gifted dropouts may be equal to the average dropout rate. It was estimated that the gifted students were at least equally represented among dropouts. However, the authors indicated that specific conclusions about the gifted dropout rate were difficult to make due to previous research design weaknesses and vagueness of definitions. In an earlier study of high-ability students, French and Cardon (1966) estimated that approximately 10% of all students of high ability withdrew from school without graduating. They also found that high-ability dropouts differed from persisters in such areas as personality, willingness to conform, interests, education skills, and family orientation toward school.

#### Factors Related to Dropping Out

In several studies efforts have been directed at examining the relationships between certain characteristics of handicapped and nonhandicapped dropout populations. In 1978, Ernst found that there were distinct differences between handicapped (the majority of the sample consisted of SLD and EMH students) and nonhandicapped dropouts. The most distinct characteristics of the handicapped group were failure to make the junior-to-senior-high-school transition, lack of future plans, and more positive views of the educational system. Ernest suggested that these differences should be considered when making educational

decisions for handicapped students. It was also suggested that earlier identification of potential dropouts should be attempted in order to provide remediation and/or intervention programs.

In another study, Zigmond and Thornton (1985) examined the relationship of employment rates of SLD youths and nonhandicapped youths. Within this study the researchers also compared the school completion rates of the two groups. Zigmond and Thornton found that only 46.2% of high school dropouts were employed 18 months to five years after leaving school, compared to a 79.9% employment rate among their graduated peers. In addition, there appeared to be no penalty in employment for students classified as SLD. The employment rate for SLD graduates (74.1%) was not significantly different from the employment rate for nonhandicapped graduates (82.9%), and SLD and nonhandicapped dropouts found it equally difficult to find employment. A comparison of the dropout rates of the two groups revealed that more than half (54.2%) of the SLD students who began ninth grade left school before graduation. This high dropout rate was significantly higher than the rate for nonhandicapped students (32.8%) from the same school district.

Within their study, Zigmond and Thornton (1985) also examined the effects of grade retention on both groups of students within their sample. They found that grade repetition was a more prevalent phenomenon among SLD (35%)

than the nonhandicapped (16%) students, but it had an equally devastating effect in both groups. In their study, Zigmond and Thornton found that every nonhandicapped student who repeated a high school grade left school before graduation and 90% of the SLD students who repeated a grade failed to graduate from high school.

In the discussion section of their study, Zigmond and Thornton (1985) speculated that employers may be more interested in the "stick-to-it-ive-ness" of the high school graduates than their actual academic skills. It was suggested that employers may be mostly concerned about factors like dependability and proper attitudes. Dropping out of school may signal a lack of task persistence and may indicate a low tolerance of frustration that makes it difficult to get and keep a job. When discussing the high SLD dropout rate, the researchers reported

the data suggested that large numbers of LD students were abandoning the educational system that is mandated to serve them and that the current emphasis on improved vocational preparation programs in the late high school years or transition services directed towards helping the high school graduate ease into the world of work will miss the mark. A significant proportion of LD youth will not be there to access these new programs and services....The mandate of PL 94-142 is clear, but for LD high school dropouts, the promise is unfulfilled. Whether seen in the context of an attempt to increase the holding power of secondary schools or as a way to reduce unemployment and its drag on welfare services or as an attempt to save large numbers of LD youth from sad, frustrating, and unproductive futures, an attack on the dropout problem must be undertaken immediately. (p. 54)

Zigmond, Thornton, and Kohnke (1986) examined whether certain factors could be used to predict dropping out in

SLD and nonhandicapped populations based upon such factors as family background, socioeconomic level, parental education, individual characteristics, and school experience measures. They obtained their data from interviews and school record searches completed on the two samples of students who had attended ninth grade in a northeastern school district and had either completed high school or had dropped out. Zigmond et al. (1986) indicated that the SLD and nonhandicapped students at risk of dropping out may be identified with considerable accuracy prior to high school by using information readily available to school personnel.

Zigmond et al. (1986) utilized both univariate and a series of stepwise discriminant procedures to analyze their results. They found that early retention and 9th grade retention were variables that discriminated known dropouts and graduates best in the nonhandicapped group. Eighth grade attendance, race, and gender were found to be more important predictors for the SLD group. In the nonhandicapped sample, dropouts had significantly lower scores on the group IQ test and on the academic assessment test than graduates; however, these measures did not differentiate SLD dropouts from SLD graduates. It should be noted that the group academic assessment test was administered in the 11th grade when most of the dropouts were no longer in school. In the SLD sample, mean Wide Range Achievement Test (WRAT) standard scores in math at the time of placement were significantly lower for dropouts ( $M=75.8$ ) than

for graduates ( $M=82.1$ ). For both groups, Carnegie units earned in the ninth grade, retention in ninth grade, rate of absence and tardiness in ninth grade and rate of absence in middle school differentiated dropouts from graduates. A significantly greater proportion of SLD dropouts (72%) were retained in the ninth grade than SLD graduates (7.75).

Zigmond et al. (1986) reported that they found significant differences between dropouts and graduates on a number of variables. They also stated

since the findings were not the same for the NLD and LD samples, it would appear that factors which are related to dropping out in the normal school population may not be the same as those that are related to dropping out among LD students. (Zigmond et al., 1986, p. 7)

It was also reported that SLD students at risk of dropping out could be identified accurately before the 9th grade. Zigmond et al. (1986) recommended that pre-middle school prediction of dropping out for SLD students could be accomplished from a classification system based on the students socioeconomic level, placement IQ, a two-parent household factor, elementary level attendance, and elementary achievement data. Zigmond et al. (1986) concluded that the factors which were related to dropping out in the nonhandicapped population were not the same factors that were related to dropping out among the SLD students. In addition, the researchers found that SLD students at risk of dropping out could be identified accurately before the ninth grade by developing an identification system which

monitored such factors as middle school achievement and attendance.

#### Summary

In summary, exceptional education services are now being provided to more than 4 million students. According to the EHA, each handicapped child has a right to a free and appropriate education. Exceptional education programs have many of the same characteristics associated with effective dropout prevention programs. In addition, students who are placed into exceptional education programs often have demonstrated similar characteristics to that of at-risk students prior to being staffed into a specific exceptional education program.

Some researchers have indicated that the only difference between the SLD student and the underachieving student may be that the SLD student receives the exceptional education services. However, Zigmond et al. (1986) found that the factors which were related to dropping out in nonhandicapped populations were not the same factors that were related to dropping out among SLD students. Zigmond et al. (1986) also found that for the SLD students math achievement at the time of placement, grade retention, eighth grade attendance, race, and gender were significantly related to dropping out.

The available research has provided little information about the holding power of specific exceptional education programs. None of the researchers have attempted to

control for any of the school-related factors, such as academic achievement levels or previous grade retentions, when investigating the dropout rate of specific programs. However, there was some research which indicated that exceptional education students (excluding the gifted) were dropping out at a rate which was higher than the students in regular education and that gifted students were not dropping out at a disproportionate rate. Despite the obvious relationships between dropout prevention and exceptional education programs there has been little research about the effectiveness of exceptional education as a dropout prevention program. In addition, there is a need to know more about the characteristics of exceptional education dropouts in order to help develop more effective programs.

#### Summary and Critique

It is estimated that about 25% of our nation's children will not complete high school. It is very difficult to know for sure how many students are really dropping out due to inconsistent definitions of dropouts and inconsistent methods for computing the dropout rate. These inconsistencies also make it difficult to evaluate and/or compare the effectiveness of dropout prevention programs.

The factors which contribute to a student's decision to drop out are complex and interrelated. Dropping out can rarely be reduced to a single easily identifiable reason. Usually a number of factors interact which lead to a

decision to withdraw from school. Research has identified a wide range of factors that have been associated with dropping out. Dropout rates tend to be higher for male students, racial/ethnic minorities, and for persons from lower socioeconomic backgrounds. Dropouts tend to obtain low grades, be below grade level academically, older than the average student at their grade level, and often demonstrate behavior problems in school. Several researchers have been critical of dropout studies which lacked suitable measures of academic ability (Pallas, 1984; Schulz et al., 1987). Pallas indicated that very little faith should be put in research results which lack suitable controls for student's academic competencies. Schulz et al. (1987) found that reading achievement and previous retentions accounted for most of the predictable variation in student dropout rates. However, no one knows for sure what causes specific students to drop out. Many high-risk students do drop out; however, many persist until they graduate.

Although researchers also do not really know what type of program is most effective in preventing youth from dropping out of school, the experts do agree on specific program characteristics which are believed to be beneficial in an effective dropout prevention program. It is recognized that an effective program must meet the unique needs of the students it serves and should provide teachers who are responsive and caring. Additional characteristics of effective programs also include small class size with a low

student-teacher ratio, individualized personal attention to student's academic and social needs, basic skills instruction, an emphasis on the immediate and practical, rewarding of student achievement, early intervention, parental involvement, staff development and training, employment of computers, and high student expectations.

Exceptional education programs have many of the same characteristics of effective dropout prevention programs, and students who are placed into exceptional education often have demonstrated similar characteristics to those of at-risk students. Several researchers have found that the only difference between the SLD student and the under-achieving student may be the exceptional education services. However, Zigmond et al. (1986) found that the factors which were related to dropping out in SLD students were not the same factors that were related to dropping out among nonhandicapped populations.

Despite the obvious relationships between dropout prevention and exceptional education programs, there has been little research on the effectiveness of exceptional education as a dropout prevention program. In addition, researchers have documented that the factors which were related to nonhandicapped students' dropping out did not have the same influence on SLD students. We, therefore, need to know more about the characteristics of SLD dropouts and about the school holding power of specific exceptional

education programs. With a better understanding of these relationships educators may be able to utilize more effectively existing exceptional education services to help prevent at-risk students from dropping out of school.

## CHAPTER III METHODOLOGY

### Review of the Statement of the Problem

There had been little research which provided educators with data about the characteristics of SLD dropouts, and there was a need to know more about the holding power of specific exceptional education programs. The purpose of this study was to investigate the relationship between selected characteristics of SLD students and their dropout status. In addition, the holding power of specific exceptional education programs was investigated.

### Study Setting

The study was conducted in a public school district located in a populous southeastern state. The majority of the schools within the system were located in a metropolitan city; however, the outside boundaries of the system extend to several semi-rural areas. It was a large school system containing 69 elementary schools, 19 junior high schools, 9 senior high schools, 5 alternative/exceptional education schools, and 4 vocational schools. The district had a total student population of 96,116 in 1986. During the 1986-87 school year, the junior high schools contained grades seven, eight, and nine. During the same school

year, the senior high schools contained grades ten, eleven, and twelve with a student population of 18,284 students. The racial/ethnic distribution of the students was approximately 67% white, 25% black, and 6% hispanic. The remaining 2% consisted of students from several other racial/ethnic backgrounds.

#### Population

The population for this study was composed of all the sophomore students who were enrolled in the BCPS during the 1986-87 school year.

#### Study Questions and Hypotheses

Study questions one through eight will now be reviewed and their related hypotheses presented.

1. What is the relationship between the SLD students' reading achievement and their dropout status? The operational null hypothesis was: There is no significant relationship at the .05 level between the SLD students' most recent ninth grade total reading scaled scores on the CTBS and the students' dropout status at the end of their sophomore year.

2. What is the relationship between the SLD students' mathematics achievement and their dropout status? The operational null hypothesis was: There is no significant relationship at the .05 level between the SLD students' most recent ninth grade total mathematics scaled scores on the CTBS and the students' dropout status at the end of their sophomore year.

3. What is the relationship between the SLD students' age upon entry to tenth grade and their dropout status? The operational null hypothesis was: There is no significant relationship at the .05 level between the SLD students' age upon entry to tenth grade and their dropout status at the end of their sophomore year.

4. What is the relationship between the SLD students' race and their dropout status? The operational null hypothesis was: There is no significant relationship at the .05 level between the SLD students' race and the students' dropout status at the end of their sophomore year.

5. What is the relationship between the SLD students' sex and their dropout status? The operational null hypothesis was: There is no significant relationship at the .05 level between the SLD students' sex and the students' dropout status at the end of their sophomore year.

6. What proportion of the school dropouts were participating within the gifted, specific learning disabilities, emotionally handicapped, and educable mentally handicapped exceptional education programs at the time they left the school system? Question number six is descriptive in nature and a related hypothesis was not presented.

7. What is the relationship between the students' program (regular and SLD) and their dropout status? The operational null hypothesis was: There is no significant relationship at the .05 level between the students' program

(regular and SLD) and their dropout status after controlling for the students' prior reading achievement, prior mathematics achievement, entry age, race, and sex.

8. What is the difference between the dropout rate of students in the regular education program and the dropout rate of students in each investigated exceptional education program? Question number eight consisted of four subquestions. The operational null hypothesis for each implied subquestion was:

8-A. There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the specific learning disabilities program.

8-B. There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the emotionally handicapped program.

8-C. There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the educable mentally handicapped program.

8-D. There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the gifted program.

#### Procedures

In this study, the researcher analyzed student computer records from the 1986-87 school year in order to

answer the study questions. Student records from the BCPS's computer system were used as data sources. The researcher, therefore, collected unobtrusive student data and the study was causal-comparative, or *ex post facto*, in design. The data examined were "hard" data, taken directly from the individual student records. Therefore, the student records were less dependent than survey data upon the perceptual sophistication and accuracy of the respondents (Hess & Greer, 1987).

The dependent variable in this study was the dropout variable. Each subject's 1986-87 school records were examined in order to determine if the subject had been reported as a dropout (BCPS withdrawal code five). Therefore, the dropout variable was dichotomous and was indicated by using 0 for persisters and 1 for dropouts. For questions 8-A through 8-D the dropout rate for each program was determined by dividing the number of dropouts by the number of subjects enrolled, expressed as a percentage.

The BCPS utilized eight withdrawal codes during the 1986-87 school year. The eight codes were as follow:

0. No Show
2. Student transferred to another public school in county (K-12)
4. Withdrawn to attend non-public school
5. Dropout
6. Graduated

7. Attended post-secondary education prior to graduation
8. Other

"No-shows" were students who completed the 1985-86 school year and then did not attend the BCPS during the 1986-87 school year. Code eight or other was used when a student was expelled or when a student died before completing the school year. For both groups of students it was difficult to classify them as either dropouts or persisters. In the case of the no-shows, many of the students may have been summer dropouts; however, it was also likely that a small number of the students enrolled in other school systems. In the case of the code eight students, it was not known if the expelled students returned to a school system during the 1987-88 school year. Due to the difficulty of determining dropout status for both of these groups, they were not classified as dropouts or persisters and the students were also not counted as enrolled when the dropout rates were computed.

A student's program was determined by an analysis of his or her computer records. For example, if a student was considered an SLD student, his or her computer record indicated that SLD services were being provided. Students who were receiving services from more than one exceptional education program were not included in the study. A student was considered a regular education student if there was no indication of exceptional education involvement.

For questions one through five, all of the 1986-87 sophomore SLD students' records were examined. The focus was on the SLD students and the student was the unit of analysis. All of the relevant student information was examined and analyzed. However, if a student's records were incomplete in reference to any of the variables, that student was not included in the study.

For the past several years the CTBS has been administered to most of the ninth grade students within the BCPS system. Within this study, the SLD students' most recent ninth grade CTBS scaled scores were used to estimate reading and mathematics achievement. Therefore, the researcher considered the subjects' achievement levels at a point in time when they were freshmen in high school in order to determine the influence of specific achievement levels on dropping out. Because scaled scores were used, the achievement measures were continuous independent variables. Achievement levels were associated with specific dropout rates. In addition, reading and mathematics skills were viewed as school factors which could be altered by SLD program policy decisions.

For question number three, age upon entry to tenth grade (hereafter referred to as entry age) was considered a continuous variable. Each student's chronological age was computed using his or her date of birth and the date of entry to tenth grade (September 1, 1986). Entry age was assumed to reflect whether a student had been retained

prior to the 1986-87 school year. The usual entry age for students who have not been retained is 15 years and 0 months through 15 years and 11 months. Students who were over-age (a minimum age of 16 years and 0 months) were assumed to have repeated a grade prior to September 1, 1986. Entry age was associated with specific dropout rates for the SLD students and it was viewed as a school factor which could be altered by SLD program policy decisions.

For question number four, a students' race was classified in a manner which was consistent with BCPS. Race was treated as an independent variable and was coded for white, non-hispanic; black, non-hispanic; and hispanic students. SLD students of other races were not included due to the small numbers of such students.

For question number five, sex was treated as an independent variable and was indicated by using 0 for females and 1 for males.

For questions one through five, the researcher investigated the relationship between the identified independent variables and the sophomore SLD student's dropout status. The data for each student was entered once and was then analyzed by using a SPSS<sup>X</sup> multiple regression computer program. The independent variables of reading achievement, mathematics achievement, and entry age were viewed as alterable and were therefore entered first in the regression model. Race and sex were then entered into the model. This process was suggested in a study conducted by Schulz et al. (1987).

For questions one through five the order of variable entry was treated differently from other causal-comparative studies because race and sex are not alterable. If race and sex are associated with dropout status, one can only conduct further research to find alterable variables that will influence this association. Only by directing the search for alterable variables, can the association of race and sex with dropout status be of any practical value in dropout prevention. In addition, the researcher was interested in investigating the relationship between race and sex and dropout status after the effects of the alterable variables were controlled for.

Question number six provided dropout information which has not been routinely reported. The researcher analyzed the school system's dropout records in order to determine what percent of all the 1986-87 tenth grade dropout students participated within each investigated exceptional education program at the time they left the school system.

For questions seven and eight the researcher focused on the effectiveness of the four exceptional education programs. The student was the unit of analysis for both questions. Question number eight provided comparative information about the dropout rate of each investigated program.

For question number seven, multiple regression strategies were utilized to control for the effects of prior reading, prior mathematics, entry age, race, and sex on the

dropout status of regular and SLD students. The variables of reading, mathematics, entry age, race, and sex were defined and coded in the same manner as described for questions one through five. All of the SLD students who were included in the study for the first five questions were included in this analysis. In addition, all of the sophomore regular education students who met the same inclusion criteria (complete information on all variables) as those SLD students were also included in this analysis. The independent variable of program (SLD and regular) was coded and entered into the model after the variables of reading, mathematics, entry age, race, and sex; to determine the relationship between program and the students dropout status.

For questions 8-A through 8-D the samples consisted of all the 1986-87 tenth grade students who were enrolled within each of the specified programs. Students who participated within two exceptional education programs and students participating within an exceptional education program other than those being investigated were not included in this section of the study. In addition, if a student's dropout status could not be determined he or she was not included.

For question 8-A, the dropout rates of the regular program and the SLD program were calculated and analyzed. There was no attempt to control for variables such as reading level or entry-age.

For question 8-B, the dropout rates of the regular program and the EH program were calculated and compared. There was no attempt to control for variables with these two groups.

For question 8-C, the dropout rates of the regular program and EMH program were calculated and compared. There was no attempt to control for variables with these two groups.

For question 8-D, the dropout rates of the regular program and the gifted program were calculated and compared. There was no attempt to control for selected variables.

#### Analysis of Data

For questions one through five, the researcher investigated the relationship between the identified independent variables and the sophomore SLD students' dropout status. The data for each student was entered into a computer program and was then analyzed by utilizing a multiple regression analysis. The independent variables of reading achievement, mathematics achievement, and entry age were viewed as alterable and were therefore entered first in the regression model. Race and sex were then entered into the model. This process was suggested by Schulz et al. (1987).

For question number seven, the researcher investigated the relationship between the students' program (regular and SLD) and their dropout status. The variables of reading, mathematics, entry age, race, and sex were entered in the

model before the program variable. A multiple regression analysis was conducted to determine the significance of the relationship between the program variable and dropout status after controlling for the other independent variables.

Multiple regression analysis was used in this study to summarize the relationship between the dependent variable and the independent variables. The decision to use a multiple regression analysis requires some explanation since the dependent variable, dropout status is not on an interval scale. Norusis (1986) indicated that the independent and dependent variables should be measured on an interval scale when a multiple regression analysis is being used. However, Norusis also reported that when nominal variables are recoded into binary variables the scale requirement of the analysis is satisfied. The variables in this study were coded in a manner which was consistent with the method described by Norusis in order to meet the data requirements of a multiple regression analysis. Berry and Feldman (1985) have suggested that when ordinal or categorical-level dependent variables are used, alternative procedures to multiple regression, such as logit, probit, or discriminant analysis should be considered. However, discriminant analysis for two groups has been found to be closely related to multiple regression analysis when a binary grouping variable is considered the dependent variable (Cohen & Cohen, 1975; Norusis, 1986). Comparison

of the coefficients of both analysis with the same data has shown that the two sets of coefficients are proportional and therefore perfectly correlated (Cohen & Cohen, 1975; Norusis, 1986).

For questions 8-A through 8-D, there was a focus on the difference between the dropout rate of the regular education program and the dropout rate of each investigated exceptional education program. The student was the unit of analysis. The dropout rates were compared by utilizing chi-square statistical techniques. In addition, the Yates correction for the chi-square analysis was used when any one expected cell frequency was less than five. The Yates correction was used for questions 8-B and 8-C.

## CHAPTER IV RESULTS

The findings from the statistical analyses of the data which were conducted to test the hypotheses of the study are presented in this chapter. The purpose of this study was to investigate the relationship between selected characteristics of SLD students and their dropout status. In addition, the holding power of specific exceptional education programs was investigated.

### Characteristics of SLD Dropouts and Persisters

The characteristics of SLD dropouts and persisters were examined by investigating the relationship between the SLD students' dropout status and their reading achievement, mathematics achievement, age upon entry to tenth grade, race, and sex. Multiple regression strategies were utilized for study questions one through five in order to determine the magnitude of the influence of the specific independent variables on the decision to drop out. Inspection of the BCPS computer records revealed that 431 tenth grade students participated in the SLD program during the 1986-87 school year. Among those students, the records of 242 students contained the complete set of data which was required for inclusion in this section of the study.

### SLD Sample/Population Comparisons

Comparisons of the SLD sample with the total population of 1986-87 tenth grade students on the variables of race, sex, and grade completion status are reported in Table 1. The race distribution in the sample was 71.5% white (n=173), 24.0% black (n=58), and 4.5% hispanic (n=11), in comparison to 68.6% white, 22.0% black and 7.1% hispanic in the total population. The distribution of white and black students within the sample was similar to the total population, but the hispanic students were underrepresented in the SLD sample.

When compared to the total population, male students were overrepresented in the SLD sample. The sex distribution in the sample was 78.5% male (n=190) and 21.5% female (n=52), in comparison to 52.5% male and 47.5% female in the total population.

The SLD sample's dropout rate was very consistent with the total population's dropout rate. Of the 242 sample subjects, 227 (93.8%) persisted and 15 (6.2%) dropped out. The dropout rate was also 6.2% for the total population. It should be noted that for the variable of dropout status 551 students were eliminated from the population (n=9,555) because dropout status could not be determined.

### SLD Sample Characteristics

The SLD sample's dropout rate by race, sex, and age is reported in Table 2. The dropout rate for the total sample was 6.2%. A higher percentage of hispanic students (9.1%)

Table 1

SLD Sample/Population Comparison on Race, Sex, and Dropout Status

Variables	Sample		Population	
	N	%	N	%
<b>Race</b>				
White	173	71.49	6,556	68.61
Black	58	23.97	2,104	22.02
Hispanic	11	4.54	675	7.07
Other	<u>0</u>	<u>0.00</u>	<u>220</u>	<u>2.30</u>
Total	242	100.00	9,555	100.00
<b>Sex</b>				
Male	190	78.51	5,021	52.55
Female	<u>52</u>	<u>21.49</u>	<u>4,534</u>	<u>47.45</u>
Total	242	100.00	9,555	100.00
<b>Dropout Status</b>				
Persisters	227	93.80	8,444	93.78
Dropouts	<u>15</u>	<u>6.20</u>	<u>560</u>	<u>6.22</u>
Total	242	100.00	9,004	100.00

Note: Dropout status could not be determined for 551 students in the population.

dropped out than white students (6.4%). White students dropped out at a higher rate than black students (5.2%). The data indicated that male students dropped out at a rate of 6.3% and female students dropped out at a rate of 5.8%.

Table 2 also reveals that over-age students were more likely to drop out than normal-age students. Over-age students (n=37) dropped out at a 13.5% rate and normal-age students (n=205) dropped out at a 4.9% rate. The results indicate that if a student is over-age, he or she is 8.6% more likely to drop out than a normal-age student.

Table 2

Dropout Rate by Race, Sex, and Age for the SLD Sample (N=242)

Variables	Dropout	Dropout Rate
	N	%
<u>Race</u>		
White (n=173)	11	6.36
Black (n=58)	3	5.17
Hispanic (n=11)	1	9.10
<u>Sex</u>		
Male (n=190)	12	6.32
Female (n=52)	3	5.77
<u>Age</u>		
Normal-age (n=205)	10	4.88
Over-age (n=37)	5	13.51

Additional descriptive information about the data is listed in Table 3 for the variables of reading, mathematics, and age. The mean total reading scaled scores on the 1986 CTBS were as follows: 726.22 with a standard

deviation (SD) of 40.27 for persisters; 722.66 with a SD of 42.35 for dropouts; and 726.00 with a SD of 40.33 for the total sample. The mean total mathematics scaled scores on the 1986 CTBS were as follows: 716.03 with a SD of 18.74 for persisters; 708.13 with a SD of 17.08 for dropouts; and 715.55 with a SD of 18.70 for the total sample. The mean chronological entry ages were 15.21 with a SD of .70 for persisters; 15.69 with a SD of .44 for dropouts; and 15.24 with a SD of .69 for the total sample.

Table 3

Means and Standard Deviations (SD) of the Reading, Mathematics, and Entry Age Variables for the SLD Sample (N=242)

Variables	Persisters		Dropouts		Total Sample	
	Mean	SD	Mean	SD	Mean	SD
Reading	726.22	40.27	722.66	42.35	726.00	40.33
Mathematics	716.03	18.74	708.13	17.08	715.55	18.70
Entry Age	15.21	.70	15.69	.44	15.24	.69

Relationship between Reading Achievement and Dropout Status

The first question asked in the study was, "What is the relationship between the SLD students' reading achievement and their dropout status?" The operational null hypothesis was, "There is no significant relationship at the .05 level between the SLD students' most recent ninth grade total reading scaled scores on the CTBS and the students' dropout status at the end of their sophomore

year." Results of the multiple regression analysis shown in Table 4 suggested no significant relationship between the SLD students' ninth grade reading scaled scores and the students' dropout status. The F Change value was low and not statistically significant: F Change (1, 240) = .1091,  $p < .7414$ . The null hypothesis was therefore retained.

As shown in Table 4 the independent variable of reading accounted for only .05% of the explained variance of the dependent variable, dropout status. The coefficient of determination ( $R^2$ ) was .0005. In addition, the table contains the standardized regression coefficient (Beta) which suggested that there was no systematic relationship between reading and dropping out. Reading and dropout status had a Beta coefficient of -.0213. Beta is a regression coefficient in which all variables are standardized to a mean of zero and a standard deviation of one.

#### Relationship between Mathematics Achievement and Dropout Status

The second question asked in the study was, "What is the relationship between the SLD students' mathematics achievement and their dropout status?" The operational null hypothesis was, "There is no significant relationship at the .05 level between the SLD students' most recent ninth grade total mathematics scaled scores on the CTBS and the students' dropout status at the end of their sophomore year." Results of the multiple regression analysis shown in Table 4 suggested no significant relationship between the SLD students' ninth grade mathematics scaled scores and

Table 4

Multiple Regression Summary Table for SLD Students (N=242)

Step	Variable	r	Beta	R	R <sup>2</sup>	Change	DF	F	Significance	Significance
1	Reading	-.0213	-.0213	.0213	.0005	.0005	1-240	.1091	.7414	.1091
2	Mathematics	-.1021	-.1134	.1049	.0110	.0106	2-239	2.5499	.1116	1.3299
3	Entry Age	.1691	.1656	.1931	.0373	.0263	3-238	6.5015	.0114	3.0741
4 & 5	Race	----	----	.2007	.0403	.0030	5-236	.3645	.6950	1.9804
6	Sex	.0093	-.0090	.2009	.0404	.0001	6-235	.0190	.8905	1.6467

r = Pearson correlation coefficient of the independent variable and the dependent variable.

DF = Degrees of freedom for Regression-Residual.

the students' dropout status. The F Change value was low and not statistically significant: F Change (2, 239) = 2.5499,  $p < .1116$ . The null hypothesis was therefore retained. The F Change value is referred to as the "partial F" test. The significance level of F Change indicates the statistical significance of the partial correlation coefficient. The partial correlation coefficient can be interpreted as the correlation between the last entered independent variable and the dependent variable when the effects of the other independent variables already entered in the model have been removed (Norusis, 1986).

As shown in Table 4 the independent variable of mathematics added 1.06% to the variance already explained by the reading variable when the mathematics variable entered the equation ( $R^2$  Change = .0106). The total explained variance by both variables was 1.10% ( $R^2$  = .0110). Although the relationship between ninth grade mathematics skills and dropping out of school in the tenth grade is not significant, there appears to be a weak association between the two variables. The association between the variables is indicated on Table 5. For example, the data indicate that of the 28 SLD students who obtained a mathematics stanine score of 2.00 on the CTBS (or an approximate grade equivalent of 6.5 when the approximate median level of the second stanine is determined) four of the students dropped out with a resulting dropout rate of 14.29%. This relatively high rate can then

be compared to the dropout rate of students who demonstrated stronger mathematics skills on the 1986 CTBS test. It should be noted that none of the students at the 7.00 stanine level dropped out and none of the SLD students obtained scores that were above the 7.00 stanine level.

#### Relationship between Entry Age and Dropout Status

The third question asked in the study was, "What is the relationship between the SLD students' age upon entry to tenth grade and their dropout status?" The operational null hypothesis was, "There is no significant relationship at the .05 level between the SLD students' age upon entry to tenth grade and their dropout status at the end of their sophomore year." Results of the multiple regression analysis shown in Table 4 suggested a significant relationship between the SLD students' entry age and the students' dropout status. The F Change value was high and statistically significant:  $F$  Change (3, 238) = 6.5015,  $p < .0114$ . The null hypothesis was therefore rejected.

As shown in Table 4 the independent variable of entry age added 2.63% to the variance already explained by reading and mathematics when it entered the equation ( $R^2$  change = .0263). The total explained variance by all three variables was 3.73% ( $R^2$  = .0373). In addition, the Beta coefficient was .1656, indicating a low positive correlation between entry age and dropout status after controlling for prior reading and mathematics achievement. The Pearson correlation coefficient ( $r$  = .1691) provides an indication

Table 5

Dropout Rate by Mathematics Grade Level for the SLD Sample (N=242)

Mathematics Stanine	Mathematics Grade	Dropout N	Dropout Rate %
1.00 (n=25)	5.3	2	8.00
2.00 (n=28)	6.5	4	14.29
3.00 (n=40)	7.5	3	7.50
4.00 (n=64)	8.5	4	6.25
5.00 (n=38)	9.7	1	2.63
6.00 (n=37)	11.7	1	2.70
7.00 (n=10)	>12.9	0	0.00

of the relationship between the independent and the dependent variables without an adjustment for the independent variables of reading and mathematics. The results suggest that students with higher entry ages are more likely to dropout than younger students.

The results shown in Table 2 revealed that 4.88% of the normal-age SLD students dropped out and 13.51% of the over-age SLD students dropped out. The data suggest that over-age SLD students are 8.6% more likely to dropout than normal-age SLD students.

#### Relationship between Race and Dropout Status

The fourth question asked in the study was, "What is the relationship between the SLD students' race and their dropout status?" The operational null hypothesis was, "There is no significant relationship at the .05 level between the SLD students' race and the students' dropout status at the end of their sophomore year." Results of the multiple regression analysis shown in Table 4 suggested no significant relationship between the SLD students' race and the students' dropout status. The F Change value was low and not statistically significant: F Change (5, 236) = .3645,  $p < .6950$ . The null hypothesis was therefore retained.

The independent variable of race was added to the multiple regression analyses by using a two step dummy variable strategy. As shown in Table 4 the independent variable of race added only .30% to the variance already explained by reading, mathematics, and entry age when it entered the equation ( $R^2$  Change = .0030). The total explained variance by all four variables was 4.03% ( $R^2$  = .0403).

Relationship between Sex and Dropout Status

The fifth question asked in the study was, "What is the relationship between the SLD students' sex and their dropout status?" The operational null hypothesis was, "There is no significant relationship at the .05 level between the SLD students' sex and the students' dropout status at the end of their sophomore year." Results of the multiple regression analysis provided in Table 4 suggested no significant relationship between the SLD students' sex and the students' dropout status. The F Change value was low and not statistically significant: F Change (6, 235) = .0190,  $p < .8905$ . The null hypothesis was therefore retained. As shown in Table 4 the independent variable of sex added only .01% to the variance already explained by reading, mathematics, entry age and race when it entered the equation ( $R^2$  Change = .0001). The total explained variance by all five variables was 4.04% ( $R^2$  = .0404). In addition, the Beta coefficient was -.0090 and the Pearson correlation coefficient was .0093, suggesting no systematic relationship between sex and dropout rate.

Additional Analysis

After having addressed the first five questions in the statement of the problem, the researcher extended the scope of the study. The additional analysis was conducted in order to determine the relationships between the regular 1986-87 sophomore students' reading achievement, mathematics achievement, entry age, race, and sex to the regular students' dropout status. Multiple regression strategies were

utilized in order to determine the magnitude of the influence of the specific independent variables on the drop-out status of regular education students. The regular education sample was obtained by using the same procedures and inclusion criteria that were utilized to select the SLD sample.

Characteristics of Regular Education Dropouts and Persisters

Inspection of the BCPS computer records revealed that 8,436 tenth grade students participated in the regular program during the 1986-87 school year. Among those students, the records of 4,679 students contained all of the data which were required for inclusion in this section of the study. Both the independent and dependent variables were defined in the same manner as previously described in the methodology chapter.

Results of the multiple regression analysis shown in Table 6 suggested that there was a significant relationship between the regular students' reading, mathematics, and entry age to their dropout status. The results also suggested that there was no significant relationship between the students' race and sex to their dropout status.

The analysis revealed a significant relationship between the regular students' reading scaled scores and the students' dropout status. The F Change value was high and statistically significant: F Change (1, 4,677) = 32.7701,  $p < .0000$ . As shown in Table 6 reading accounted for .70% of

Table 6

Multiple Regression Summary Table for Regular Students (N=4,679)

Step	Variable	r	Beta	R	R <sup>2</sup>	Change	DF	F	Change	F	Significance	Significance
1	Reading	-.0834	-.0834	.0834	.0070	.0070	1-4,677	32.7701	.0000	32.7701	.0000	
2	Mathematics	-.0964	-.0728	.1007	.0101	.0032	2-4,676	14.9869	.0001	32.9275	.0000	
3	Entry Age	.1243	.1041	.1418	.0201	.0100	3-4,675	47.6126	.0000	31.9815	.0000	
4 & 5	Race	----	----	.1454	.0211	.0010	5-4,673	2.4440	.0871	20.1783	.0000	
6	Sex	.0056	-.0109	.1458	.0213	.0001	6-4,672	.5557	.4560	16.9063	.0000	

r = Pearson correlation coefficient of the independent variable and the dependent variable.

DF = Degrees of freedom for Regression-Residual.

the explained variance of the dropout status ( $R^2 = .0070$ ). In addition, the negative sign of the Pearson and Beta coefficients suggest that when the students' reading scores increased their probability of dropping out tended to decrease. However, the correlation was a weak one with a Pearson and Beta coefficient of  $-.0834$ . The relationship between the students' approximate reading grade level and their tenth grade dropout rate is displayed in Table 7.

Results displayed in Table 6 suggested a significant relationship between the regular students' mathematics scaled scores and the students' dropout status. The F Change value was high and statistically significant: F Change (2, 4,676) = 14.9869,  $p < .0001$ . As shown in Table 6 the independent variable of mathematics added .32% to the variance already explained by reading when it entered the equation ( $R^2$  Change = .0032). In addition, the negative sign of the Pearson coefficient ( $-.0964$ ) suggests that when the students' mathematics skills increased their likelihood of dropping out tended to decrease. The relationship between the regular students' approximate mathematics grade level in March of 1986 and their tenth grade dropout rate is displayed in Table 8.

The multiple regression analysis shown in Table 6 also suggested a significant relationship between the regular students' entry age and the students' dropout status. The F Change value was high and statistically significant: F Change (3, 4,675) = 47.6126,  $p < .0000$ . Table 6 indicates

Table 7

Dropout Rate by Reading Grade Level for the Regular Education Sample (N=4,679)

Reading Stanine	Reading Grade	Dropout N	Dropout Rate %
1.00 (n=79)	4.6	5	6.33
2.00 (n=127)	5.4	6	4.72
3.00 (n=419)	6.7	12	2.86
4.00 (n=847)	8.6	23	2.72
5.00 (n=1,119)	9.7	15	1.34
6.00 (n=1,105)	12.1	12	1.09
7.00 (n=654)	>12.9	7	1.07
8.00 (n=212)	>12.9	0	0.00
9.00 (n=117)	>12.9	0	0.00

Note: Grade equals the approximate median grade level of the stanine score.

Table 8

Dropout Rate by Mathematics Grade Level for the Regular Education Sample (N=4,679)

Mathematics Stanine	Mathematics Grade	Dropout N	Dropout Rate %
1.00 (n=70)	5.3	4	5.71
2.00 (n=80)	6.5	6	7.50
3.00 (n=269)	7.5	9	3.35
4.00 (n=638)	8.5	23	3.61
5.00 (n=845)	9.7	14	1.66
6.00 (n=1,213)	11.7	15	1.24
7.00 (n=872)	>12.9	7	0.80
8.00 (n=418)	>12.9	1	0.24
9.00 (n=274)	>12.9	1	0.36

Note: Grade equals the approximate median grade level of the stanine score.

that entry age added 1.00% to the variance already explained by reading and mathematics when it entered the equation ( $R^2$  Change = .0100). In addition, the low positive correlation suggested by the Pearson coefficient (.1243) implied that when a students' entry age increased their likelihood of dropping out also tended to increase. The relationship between the regular students' entry age and their tenth grade dropout rate is displayed in Table 9.

Table 9

Dropout Rate by Age for the Regular Education Sample  
(N=4,679)

Age	Dropout	Dropout Rate
	N	%
Normal-age (n=4,557)	69	1.51
Over-age (n=122)	11	9.02

The variables of race and sex added only .12% to the total variance already explained by reading, mathematics, and entry age. After all of the independent variables were entered into the model, only 2.13% of the total dropout variance could be explained.

Exceptional Education Program Holding Power

The holding power of specific exceptional education programs was examined by investigating and comparing the

dropout pattern of students within the regular education, specific learning disabilities, emotionally handicapped, educable mentally handicapped, and gifted programs. Question number six was descriptive in nature and data are presented to describe the specific program involvement of the BCPS dropouts. Multiple regression strategies were used for study question seven in order to determine the relationship between the students' program (regular and SLD) and their dropout status. In addition, chi-square statistical tests were used for study question eight in order to determine the magnitude of the difference between the dropout rate of students within the regular education program and the dropout rate of the students within each investigated exceptional education program.

#### Program Sample/Population Comparison

Inspection of the BCPS computer records revealed that the 1986-87 tenth grade population consisted of 9,555 students. Comparisons of the program sample with the total population are reported by program in Table 10. The percentages of students who participated within each of the programs are reported. For example, the table indicates that 4.32% (n=380) of the sample participated within the SLD program, compared to 4.51% (n=431) SLD participation from the total population. Inspection of the data reveals that approximately the same proportion of students participated within each program when the sample is compared to the total population.

Within this section of the study the program sample consisted of all the 1986-87 tenth grade students who were enrolled in the regular education program and/or one of the investigated exceptional education programs. Students who participated within two exceptional education programs, and students participating within an exceptional education program other than those being studied were systematically eliminated from the sample. Table 10 indicates that 158 students (1.56%) from the population either participated within other exceptional education programs or participated within two exceptional education programs. In addition, if a student's dropout status could not be determined, he or she was not included in the sample.

Table 10

Program Sample/Population Comparison by Program

Program	Sample		Population	
	N	%	N	%
Regular	7,941	90.24	8,436	88.29
SLD	380	4.32	431	4.51
EMH	64	.73	86	.90
EH	42	.47	64	.67
Gifted	373	4.24	380	3.98
Other	0	0.00	158	1.65
Total	8,800	100.00	9,555	100.00

Program Participation of Dropouts

The sixth question asked in the study was, "What proportion of the school dropouts were participating within the gifted, specific learning disabilities, emotionally handicapped, and educable mentally handicapped exceptional education programs at the time they left the school system?" The district's dropout records revealed that 560 tenth grade students dropped out during the 1986-87 school year. Table 11 shows the percentage of dropouts by program. The data suggested that 89.29% of the dropouts participated within the regular program, 7.68% participated within the SLD program, .71% participated within the EMH program, .71% participated within the EH program, .36%

Table 11

Program Participation of Dropouts

Program	Dropout N	Dropout Rate % of All Dropouts
Regular	500	89.29
SLD	43	7.68
EMH	4	.71
EH	4	.71
Gifted	2	.36
Other	7	1.25
Total	560	100.00

participated within the gifted program, and 1.25% participated within other exceptional education programs and/or participated within two exceptional education programs.

#### SLD Program Holding Power

The seventh question asked in the study was "What is the relationship between the students' program (regular and SLD) and their dropout status?" The operational null hypothesis for question seven was, "There is no significant relationship at the .05 level between the students' program (regular and SLD) and their dropout status after controlling for the students' prior reading achievement, prior mathematics achievement, entry age, race, and sex." Results of the multiple regression analysis shown in Table 12 revealed a significant relationship between the students' program and their dropout status after controlling for prior academic achievement, entry age, and demographic variables. The F Change value was high and statistically significant: F Change (7, 4,913) = 3.9376,  $p < .0473$ . The null hypothesis was therefore rejected.

As shown in Table 12 the independent variable of program added .08% to the variance already explained by reading, mathematics, entry age, race, and sex when it entered the equation ( $R^2$  Change = .0008). The total variance accounted for by all of the independent variables was 2.61% ( $R^2$  = .0261). In addition, the positive sign of the Pearson coefficient suggested that when a student was in the SLD program his or her likelihood of dropping out

Table 12

Multiple Regression Summary Table for SLD and Regular Education Students (N=4,921)

Step	Variable	r	Beta	R	R <sup>2</sup>	Change	DF	F	Change	F	Signi-ficance
1	Reading	-.091	-.0907	.0907	.0082	1-4,919	40.7959	.0000	40.7959	.0000	
2	Mathematics	-.110	-.0875	.1128	.0127	.0045	2-4,918	22.4337	.0000	31.7037	.0000
3	Entry Age	.136	.1122	.1552	.0241	.0114	3-4,917	57.2198	.0000	40.4507	.0000
4 & 5	Race	---	----	.1588	.0252	.0011	5-4,915	2.8326	.0591	25.4215	.0000
6	Sex	.015	-.0078	.1590	.0253	.0001	6-4,914	.2969	.5858	21.2311	.0000
7	Program	.071	.0295	.1614	.0261	.0008	7-4,913	3.9376	.0473	18.7715	.0000

r = Pearson correlation coefficient of the independent variable and the dependent variable.

DF = Degrees of freedom for Regression-Residual.

tended to be greater than a student who was in the regular education program.

The operational null hypothesis for question 8-A was, "There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the specific learning disabilities program." Results of the chi-square analysis shown in Table 13 suggested a significant difference between the dropout rates of students in the regular education and the SLD programs. The  $\chi^2$  value was high and statistically significant:  $\chi^2_{(1)} = 14.9783$ ,  $p < .0001$ . The null hypothesis was therefore rejected. The dropout rate of the SLD program (11.32%) was significantly higher than the dropout rate of the regular program (6.30%). Therefore the holding power of the SLD program (88.68%) was significantly lower than the holding power of the regular program (93.70%).

Table 13

Relationship Between the Dropout Rates of the SLD and Regular Students (N=8,321)

Dropout Status	SLD		Regular	
	N	%	N	%
Persisters	337	88.68	7,441	93.70
Dropouts	<u>43</u>	<u>11.32</u>	<u>500</u>	<u>6.30</u>
Total	380	100.00	7,941	100.00
$\chi^2 = 14.9783$ , $p < .0001$				

EH Program Holding Power

The operational null hypothesis for question 8-B was, "There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the emotionally handicapped program." Results of the chi-square analysis shown in Table 14 suggested no significant difference between the dropout rates of the regular education and EH programs after the Yates correction. The  $\chi^2$  value was low and not statistically significant:  $\chi^2_{(1)} = .2913$ ,  $p < .5894$ . The null hypothesis was therefore retained. The dropout rate of the EH program (9.52%) was not significantly different from the regular program dropout rate (6.30%). Therefore there was also no significant difference between the holding power of the EH program (90.48%) and the holding power of the regular program (93.70%).

Table 14

Relationship Between the Dropout Rates of the EH and Regular Students (N=7,983)

Dropout Status	EH		Regular	
	N	%	N	%
Persisters	38	90.48	7,441	93.70
Dropouts	<u>4</u>	<u>9.52</u>	<u>500</u>	<u>6.30</u>
Total	42	100.00	7,941	100.00

$\chi^2 = .2913$ ,  $p < .5894$  (after Yates correction)

EMH Program Holding Power

The operational null hypothesis for question 8-C was, "There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the educable mentally handicapped program." Results of the chi-square analysis shown in Table 15 suggested no significant difference between the dropout rates of the regular education and EMH programs after the Yates correction. The  $\chi^2$  value was low and not statistically significant:  $\chi^2_{(1)} = .00000$ ,  $p < 1.0000$ . The null hypothesis was therefore retained. The dropout rate and the holding power of the EMH program (6.25% and 93.75%, respectively) were not significantly different from the regular program (6.30% and 93.70%, respectively).

Table 15

Relationship Between the Dropout Rates of the EMH and Regular Students (N=8,005)

Dropout Status	EMH		Regular	
	N	%	N	%
Persisters	60	93.75	7,441	93.70
Dropouts	<u>4</u>	<u>6.25</u>	<u>500</u>	<u>6.30</u>
Total	64	100.00	7,941	100.00

$\chi^2 = .00000$ ,  $p < 1.0000$  (after Yates correction)

Gifted Program Holding Power

The operational null hypothesis for question 8-D was, "There is no significant difference at the .05 level between the dropout rate of the regular education program and the dropout rate of the gifted program." Results of the chi-square analysis shown in Table 16 suggested a significant difference between the dropout rates of the regular education and gifted programs. The  $\chi^2$  value was high and statistically significant:  $\chi^2_{(1)} = 20.8358$ ,  $p < .0000$ . The null hypothesis was therefore rejected. The dropout rate of the gifted program (.54%) was significantly lower than the dropout rate of the regular education program (6.30%). Therefore the holding power of the gifted program (99.46%) was significantly higher than the holding power of the regular program (93.70%).

Table 16

Relationship Between the Dropout Rates of the Gifted and Regular Students (N=8,314)

Status	Gifted		Regular	
	N	%	N	%
Persisters	371	99.46	7,441	93.70
Dropouts	<u>2</u>	<u>.54</u>	<u>500</u>	<u>6.30</u>
Total	373	100.00	7,941	100.00
$\chi^2 = 20.8358$ , $p < .0000$				

Summary of the Program Holding Power

The holding power and dropout rate of each investigated program are summarized in Table 17. The programs are listed in descending order when the holding power is considered. The holding power was highest for the gifted program (99.46%) and lowest for the SLD program (88.68%). The dropout rate of the SLD program (11.32%) was more than 20 times higher than the dropout rate of the gifted program (.54%). The dropout rate of the SLD program was also almost twice as high as the dropout rate of the regular program (6.30%). In addition, the dropout rate of the EH program (9.52%) was more than one and one-half times as high as the dropout rate of the regular program.

Review of the Results

The multiple regression analysis of the SLD sample suggested that the independent variable of entry age is significantly related to the students' dropout status. The data implied that when the students' entry age increased the likelihood of their dropping out also tended to increase. The other independent variables of reading, mathematics, race, and sex were found not to be significantly related to the SLD students' dropout status.

The multiple regression analysis of the regular education sample suggested that the independent variables of reading, mathematics, and entry age are significantly related to the students' dropout status. The independent variables of race and sex were found not to be significantly related to the regular students' dropout status.

Table 17

Summary of Program Holding Power

Program	Holding Power		Dropout Rate	
	N	%	N	%
Gifted (n=373)	371	99.46	2	.54
EMH (n=64)	60	93.75	4	6.25
Regular (n=7,941)	7,441	93.70	500	6.30
EH (n=42)	38	90.48	4	9.52
SLD (n=380)	337	88.68	43	11.32

When the SLD regression sample and the regular education regression sample were combined in an additional multiple regression analysis, the independent variable of program was significantly related to the students' dropout status after controlling for prior academic achievement, entry age, and demographic variables under the conditions specified within the study question. The chi-square analysis suggested that the dropout rate of the SLD program was significantly higher than the dropout rate of the regular program.

An additional analysis utilizing the chi-square statistical test suggested that there was a significant difference between the dropout rates of students within the gifted program and students within the regular program. The dropout rate of the gifted program was significantly lower than the dropout rate of the regular program. There were no significant differences in the dropout rates of either the EH and the EMH programs when compared to the dropout rate of the regular education program.

CHAPTER V  
SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This chapter is organized into three main sections. The first section includes a summary of the study and its findings. The conclusions of this study and their consistency with the conclusions of related studies are presented in the second section. The final section contains implications for program improvement and for further research.

Summary

The purpose of this study was to investigate the relationship between the SLD students' dropout status and their reading skills, mathematics skills, entry age, race, and sex. In addition, the researcher investigated the difference between the holding power of specific exceptional education programs and the holding power of the regular education program.

The study contained two distinct components. The focus of the first component was to investigate the characteristics of SLD dropouts and persisters. There was a focus on school variables which were believed to be alterable by SLD program policy and instruction. The focus of the second component was to investigate and compare the holding power of four exceptional education programs to the holding power of the regular education program.

The study was ex post facto in design and the data were obtained from student computer records. The subjects consisted of 8,800 students who were sophomores during the 1986-87 school year. The subjects were from a single public school district located in a populous southeastern state. Only 8% of the sophomore students within the total population were not included in the study due to dropout status determination difficulties, participation within two exceptional education programs, and/or participation within an exceptional education program other than the ones investigated.

#### Characteristics of SLD Dropouts and Persisters

The focus of the first section was on the SLD students and the student was the unit of analysis. The dependent variable was the students' dropout status and the independent variables were reading, mathematics, entry age, race, and sex. Students' records were included in the study if there was a complete set of information for each variable (n=242).

The multiple regression analysis of the SLD sample provided indications that the independent variable of entry age was significantly related to the students' dropout status ( $F$  Change [3, 238] = 6.5015,  $p < .0114$ ). Entry age added 2.63% to the variance already explained by reading and mathematics when it was entered into the equation. The relationship suggested that when the SLD students' entry age increased the likelihood of their dropping out also

tended to increase. The data indicated 4.88% of the normal-age students dropped out and 13.51% of the over-age students dropped out. The data also indicated a difference of 8.6% between the dropout rate of the normal-age and the over-age SLD students.

The other independent variables of reading, mathematics, race, and sex were found not to be significantly related to the SLD students' dropout status. Although the relationship between ninth grade mathematics skills and dropping out of school in the tenth grade was not significant, there appeared to be a weak association between mathematics and dropping out. The data displayed in Table 5 provided indications that the students with stronger mathematics skills may be less likely to drop out than those with lower mathematics scores.

When all of the investigated independent variables were entered into the model, the relationship between the independent variables and the dependent variable, dropout status, was found to be not significant ( $F[6, 235] = 1.6467$ ,  $p < .1351$ ). In addition, all of the independent variables accounted for only 4.04% of the variance in the SLD students' dropout status.

#### Characteristics of Regular Education Dropouts and Persisters

An analysis of the 1986-87 regular education sophomore students was conducted for comparative purposes. The sample selection procedures were identical for both the SLD and regular education students. In addition, both the

independent and dependent variables were the same as those used for the SLD students. Multiple regression analysis of the data implied a significant relationship between the regular students' (n=4,679) reading, mathematics, and entry age to their dropout status. The results also suggested that there was no significant relationship between the students' dropout status and their race and sex.

When the regular students' ninth grade reading and mathematics skills increased, their likelihood of dropping out tended to decrease. The data also suggested that when regular students' tenth grade entry age increased, their likelihood of dropping out tended to increase. After all of the independent variables were entered into the model, only 2.13% of the total dropout variance could be explained.

#### Exceptional Education Program Holding Power

The holding power of specific exceptional education programs was examined by investigating and comparing the dropout patterns of students within the regular education, specific learning disabilities, emotionally handicapped, educable mentally handicapped, and gifted programs. The school system's computer records revealed that a total of 560 tenth grade students dropped out during the 1986-87 school year. The data suggested that 89.29% of the 1986-87 sophomore dropouts participated within the regular program, 7.68% participated within the SLD program, .71%

participated within the EMH program, .71% participated within the EH program, and .36% participated within the gifted program.

The holding power of the SLD program was initially investigated by utilizing a multiple regression analysis to determine if there was a significant relationship between the students' program (SLD and regular) and their dropout status after controlling for their reading skills, mathematics skills, entry age, race, and sex. The sample (n=4,921) included all of the SLD and regular education students who were previously included within the individual program multiple regression analyses. The results suggested that the program variable was significantly related to the students' dropout status and that students in the SLD program were more likely to drop out than students in the regular program. The F Change value and significance level were high for the independent variable of program: F Change (7, 4,913) = 3.9376,  $p < .0473$ . However, it should be remembered that there are many factors which are related to a student's decision to drop out and all of those factors were not accounted for within this study.

The holding power of the SLD program was also investigated by comparing the dropout rates of the SLD and regular education program samples. The chi-square analysis implied that the dropout rate for the SLD program (11.32%) was significantly higher than the dropout rate for the regular program (6.30%). Therefore, the holding power of the SLD

program (88.68%) was significantly lower than the holding power of the regular program (93.70%). However, the program differences found within this analysis may have been influenced by variables which were not controlled for within this study.

The holding power of the EH program was investigated by comparing the dropout rates of the EH and regular education programs. The chi-square analysis suggested that the dropout rate of the EH program (9.52%) was not significantly different from the dropout rate of the regular program (6.30%). Therefore, there was no significant difference between the holding power of the EH and the regular programs.

The holding power of the EMH program was investigated by comparing the dropout rates of the EMH and regular education programs. The chi-square analysis implied that the dropout rate of the EMH program (6.25%) and the holding power of the EMH program (93.75%) were not significantly different from the dropout rate and the holding power of the regular education program.

The holding power of the gifted program was investigated by comparing the dropout rates of the gifted and regular education programs. The chi-square analysis suggested a significant difference between the dropout rates of the gifted and regular programs. The  $\chi^2$  value and significance were high:  $\chi^2(1) = 20.8358$ ,  $p < .0000$ . The dropout rate of the gifted program (.54%) was significantly

lower than the dropout rate of the regular education program (6.30%). Therefore, the holding power of the gifted program (99.46%) was significantly higher than the holding power of the regular program (93.70%).

A comparison of the programs' holding power revealed that the gifted program had the highest student retention rate. The gifted program's ability to hold students in school was followed by the EMH, regular, EH, and then SLD program when listed in descending order. The dropout rate of the gifted program was more than eleven times less than the dropout rate of the regular program. In addition, the dropout rate of the SLD program was almost twice the dropout rate of the regular education program.

#### Conclusions

Most of the dropout research has indicated that the factors which contribute to a student's decision to drop out are complex and interrelated. Dropping out can rarely be reduced to a single easily-identifiable reason. Researchers have identified a wide range of factors that have been associated with dropping out. However, most of the researchers have not investigated factors which are believed to be related to dropping out for specific groups of students, such as the SLD student. In addition, there has been little research on the holding power of specific exceptional education programs. This study provides additional information within both of these areas.

Characteristics of Dropouts and Persisters

The results of this study suggest that the variables of reading, mathematics, sex, and race are not significantly related to the SLD students' dropout status. However, the variable of entry age to tenth grade is significantly related to dropping out for SLD students. The results suggest that when the students' entry age increases, their likelihood of dropping out also tends to increase. Over-age students are more likely to drop out than normal-age students. Although the association was not significant, the results also suggest that when SLD students' mathematics skills increase their likelihood of dropping out may tend to decrease.

The influence of the same independent variables on the dropout status of regular education students within the same school system was also examined for comparative purposes. The results suggest that reading, mathematics, and entry age are significantly related to the regular students' dropout status.

Only the independent variable of entry age is significantly related to both the SLD and regular students' dropout status. The variables of race and sex are not related to dropping out in either group when the factors of reading, mathematics, and entry age are controlled for. The variables of reading and mathematics are not related to dropping out for the SLD students'; however, they are significantly related to the dropout status of the regular

students. In addition, when all the independent variables were entered within the regression models it was found that they were significantly related to the regular students' dropout status; however, they were not significantly related to the SLD students' dropout status. It could therefore be concluded that the independent variables that are related to the regular students' decision to drop out do not have the same affect on the SLD students' dropout status. However, the larger size of the regular education sample allows small relationships to be statistically significant. Therefore, conclusions about the differences between the two groups are limited by the discrepancy in their sample sizes.

When all the independent variables were entered into the models for both groups they accounted for very little of the variance in the students' dropout status. Consequently, it is concluded that the investigated independent variables do not appear to predict dropout status well for either group.

#### Literature Related to the Characteristics of Dropouts

The results from this section of the study were consistent with the findings of previous researchers (Ernst, 1978; Zigmond et al., 1986) who concluded that the factors which were related to dropping out in nonhandicapped populations did not have the same influence on the dropout status of SLD students. Zigmond et al. (1986) found that previous retention, mathematics skills at time of placement, race, and sex were related to dropping out for the

SLD group. In their nonhandicapped sample the factors of retention, IQ, and academic achievement were significantly related to dropping out.

Zigmond et al. (1986) discovered that entry age (previous retention) was significantly related to both the SLD and nonhandicapped students' dropout status. However, the influence of academic achievement on the students' dropout status was found to be more significant for regular education students than for SLD students. Zigmond et al. (1986) also concluded that race and sex were significantly related to the SLD students' dropout status; however, race and sex in the present study were found not to be significantly related to dropping out for both groups of students.

In another related study, Schulz et al. (1987) found that reading achievement and entry age accounted for most of the predictable variation in student dropout status when they investigated a combination of both exceptional and regular education students within a single school district. They found the dropout rate of over-age students to average about 13% points higher than the dropout rate of normal-age students with the same reading skills. Schulz et al. (1987) also found that whites were as inclined to drop out as blacks and hispanics when differences in reading achievement and entry age were removed.

The results of the present study are consistent in many ways with those of Schulz et al. (1987). For both groups of students, sex and race are not significantly

related to dropping out after controlling for the affects of reading, mathematics, and entry age. In addition, entry age is significantly related to both SLD and regular students' dropout status. It was found that the dropout rate of over-age SLD students averaged about 9% points higher than the normal-age SLD students and the dropout rate of over-age regular students averaged about 8% points higher than the normal-age regular students. However, reading and mathematics achievement is only significantly related to the regular students' dropout status.

#### Exceptional Education Program Holding Power

The results of this study suggested that about 89% of the sophomore dropouts were in the regular program, 7.68% were in the SLD program, .71% were in the EMH program, .71% were in the EH program, and .36% were in the gifted program. When these figures are compared to the percentage of student program involvement for the population (incidence rate) which was shown in Table 10 it can be concluded that the percentage of dropouts from the regular, EMH, and EH programs is approximately consistent with the incidence rate for each respective program. The results also suggest that the percentage of SLD dropouts is greater than the SLD program incidence rate and the percentage of gifted dropouts is lower than the gifted program incidence rate. In addition, it can be determined that about 11% of the sophomore dropouts from the school district participated in at least one exceptional education program.

Results from this study suggest that there is a significant difference between the holding power of the SLD program and the regular education program. Within the multiple regression analysis, the independent variable of program was entered into the model after controlling for the effects of the students' reading skills, mathematics skills, entry age, race, and sex on their dropout status. In both the multiple regression and chi-square analyses, the SLD program's holding power was significantly below the holding power of the regular education program. It could be concluded that the SLD program is not as effective as the regular program in holding students in school. However, confounding variables could have been related to the programs' holding power and to the students' dropout status. In addition, the large discrepancy between the sample size of the exceptional education students and the sample size of the regular students may have limited the validity of the chi-square analysis.

The holding power of the EH and EMH programs was investigated by comparing each programs' dropout rate to the dropout rate of students within the regular education program. The results of this study suggest that there is no significant difference between the holding power of the EH and EMH programs when each is compared to the holding power of the regular education program. It can therefore be concluded that both the EH and the EMH programs are as effective as the regular education program in preventing students from dropping out.

The holding power of the gifted program was also investigated by comparing the dropout rates of the gifted and the regular programs. The study yielded evidence which suggest that the dropout rate of the gifted program is significantly less than the dropout rate of the regular education program. It can therefore be concluded that the gifted program's holding power is significantly higher than the regular program's holding power.

A comparison of the holding power for each program revealed that students within the gifted program are most likely to stay in school. The gifted program's holding power is followed by the holding power of the EMH, regular, EH, and then the SLD program. The dropout rate of the SLD program is almost twice as high as the dropout rate of the regular education program.

#### Literature Related to Program Holding Power

It is difficult to compare the number of students who are dropping out of specific programs or school systems due to inconsistent definitions of dropouts and inconsistent methods for computing the dropout rate (Rumberger, 1987). These inconsistencies also make it difficult to evaluate and/or compare the effectiveness of dropout prevention programs. However, within this study a consistent definition of dropouts and a consistent method of computing the dropout rate were maintained. This procedure was developed in order to help compare the holding power of the specific programs. The literature indicates that it is generally

believed that effective dropout prevention programs include small class size with a low student-teacher ratio, responsive teachers, individualized personal attention, basic skills instruction, an emphasis on the practical, rewarding of student achievement, early intervention, parental involvement, and staff development (Adams, 1986; Dropouts: Who, 1986; Greene, 1966; Gainer, 1987; Wehlage & Rutter, 1986). Exceptional education programs contain many of the same characteristics which are associated with effective dropout prevention programs. However, there had been little research which provided information about the effectiveness of exceptional education as a dropout prevention program.

Wehlage and Rutter (1986) have indicated that the holding power of a program ought to be part of the definition of an excellent school or program. Wehlage et al. (1987a) indicated that special efforts with at-risk students should result in at least the reduction of in-school failure and a corresponding reduction in the dropout rate. Ralph Tyler's (1950) objectives/outcomes evaluation model can be used to help determine the effectiveness of specific programs. The model relates students' behaviors to the stated purposes and objectives of the program. The educational objective of retaining students in school should be considered for all programs and must be considered when evaluating the effectiveness of a dropout prevention program. The current mandates of the EHA insure handicapped children basic educational rights which include an

individualized education plan (IEP). Exceptional education services are presently one alternative available to at-risk students.

The purpose of the program holding power section of the study was to evaluate the effectiveness of specific exceptional education programs as dropout prevention programs by using the objectives/outcomes evaluation model. Although the investigated programs did not specify the goal of retaining students in school, the programs are listed as available services for at-risk students within the school districts dropout prevention plan. In addition, within the EHA it is mandated that an IEP will be developed for each exceptional education student. If the IEP was truly based on the specific needs of the individual student and appropriate program accommodations were being provided it would be reasonable to expect that the special efforts with at-risk students would have resulted in a reduction of school failure and a corresponding reduction in the programs' dropout rate.

Researchers within the area of SLD dropouts have generally not attempted to control for any of the school related factors when investigating the holding power of specific programs. In addition, Ysseldyke et al. (1982) have reported that the only difference between the SLD student and the underachieving student may be that the SLD student received the exceptional education services. In this study, the effectiveness of the SLD program's holding

power was evaluated by controlling for the effects of the students' reading, mathematics, entry age, race, and sex on their dropout status. Multiple regression strategies were utilized when both the SLD and regular students were included in the model. When the independent variable, program, was entered last into the model the results suggested that the students within the SLD program were more likely to dropout than similar students within the regular program. Consequently, it could be concluded that the SLD program is not as effective as the regular program in holding students in school.

Researchers within the area of exceptional education dropouts have generally indicated that students who were participating within exceptional education programs (excluding the gifted program) dropped out of school at a rate that was higher than the regular student rate (Baldwin, 1986; Stephenson, 1987; Zigmond & Thornton, 1985). Baldwin found that the SLD and EMH dropout rates were about twice as high as the regular program dropout rate, and the dropout rate for the EH program was about three times as high as the regular program's dropout rate.

The results from this study suggest that the dropout rate of the EMH program is similar to the dropout rate of the regular program (6.25% and 6.30%, respectively). The dropout rate of the EH program is about one and one half times larger than the regular program's dropout rate (9.52% and 6.30%, respectively). In addition, the SLD program's

dropout rate is about twice as high as the regular program's rate (11.32% and 6.30%, respectively). It can therefore be concluded that the results from this section of the study are generally consistent with the findings of previous researchers who discovered that the dropout rate of exceptional education students (excluding the gifted) was higher than the dropout rate of regular education students. However, within this study the dropout rate of the EMH program is about the same as the dropout rate of the regular program.

Researchers within the area of gifted dropouts have indicated that the proportion of gifted dropouts may be equal to the average dropout rate of the school district (French & Cardon, 1966; Lajoie & Shore, 1981). French and Cardon estimated that approximately 10% of all high-ability students withdrew from school without graduating. Based on the findings of previous researchers it could have been expected that the gifted program's dropout rate would have been approximately the same as the school district's dropout rate (6.22%). However, the results of this study suggest that the gifted program's dropout rate is significantly lower than the dropout rate of the regular education program (.54% and 6.30%, respectively). It can therefore be concluded that the holding power of the gifted program is significantly stronger than the holding power of the regular program.

In review, there have been few attempts to control for school-related factors when investigating the effectiveness

of an exceptional education program's holding power. Within this study various factors were controlled, and it was discovered that the SLD program is not as effective in holding students in school as the regular program. When there was no attempt to control for school and demographic factors, the results also suggested that the holding power of the SLD program is significantly less than the holding power of the regular program. The results revealed that there is no significant difference between the holding power of the EH and EMH programs when each is compared to the regular program's holding power. The results of this study also suggest that the holding power of the gifted program is stronger than the holding power of the regular program.

#### Implications

There are many individual and societal consequences associated with our nation's high dropout rate. Exceptional education programs provide individualized services to more than 4 million at-risk students. However, researchers report that the dropout rates are higher for students within most of the existing exceptional education programs. This study has been exploratory in nature and was designed in order to obtain additional information about the factors which influence SLD students to drop out and to obtain current data about the holding power of specific exceptional education programs. The implications of this study may help in the development of programs for

at-risk students, and it also provides current information about the effectiveness of existing programs.

#### Implications Related to Dropout Characteristics

The results of this study suggest that the variables of reading and mathematics test scores, sex, and race are not significantly related to the SLD students' dropout status. However, there does appear to be a low association between mathematics scores and the students' dropout status. In addition, entry age is related to dropping out. When all of the investigated independent variables were entered in the model, they only accounted for a small percentage (4.04%) of the factors that are related to the SLD students' dropout status.

There are many implications associated with these findings. The most striking implication for policy development is that all of the explored factors combined do not account for a significant percentage of the variables which influence the SLD student to drop out. In other words, the SLD program may improve students' academic skills and reduce their entry age without significantly improving the program's holding power. The implications are that we need to improve other aspects of the program in addition to the investigated school-related variables. Suggestions for relevant areas to consider that were not investigated in this study are as follow: development of a more responsive IEP, additional instructional flexibility aimed at meeting the goals specified within the IEP, additional

flexibility regarding the criteria of a special diploma, staff development activities aimed at dropout issues stressing the importance of the teachers' role in reducing the dropout rate, and additional parental involvement.

The results do suggest that there is a significant relationship between entry age and the SLD students' drop-out status. It was found that over-age students were 8.6% more likely to drop out than normal-age students. The implications are that the SLD program's holding power may be improved if fewer SLD students were required to repeat specific grades as they progressed through school. It appears reasonable to this researcher, that in most cases additional adjustments to the students' IEP and curriculum would be a better alternative to help students in school.

The relationship between the SLD students' mathematics skills and their drop-out status was a weak one. However, there was a low association which suggested that we may be able to reduce the dropout rate by improving SLD students' mathematics skills. It may therefore be beneficial to place additional emphasis on the development of mathematics skills for the SLD student.

The results suggested that there was not a significant relationship between reading, mathematics, race, and sex and the SLD students' drop-out status. The lack of a relationship between reading and dropping out was in some ways surprising; however, it does support the conclusion that there may in fact be differences between the regular education dropout and the SLD dropout. The results related

to race and sex imply that after reading, mathematics, and entry age are accounted for, the race and sex of the SLD students are not significantly related to their decision to drop out.

When the relationships between the independent variables and the regular students' dropout status were examined, it was found that reading, mathematics, and entry age were significantly related to the students' decision to drop out. These results suggest that there may be differences between the SLD and regular education dropouts which need to be addressed within the students' respective curricula. Factors which are related to the regular students' decision to drop out do not appear to have the same affect on the SLD students. The results suggest that the holding power of the regular program may be improved by reducing the practice of grade retention and by increasing the students' reading and mathematics skills. In addition, the independent variables accounted for only a small amount of the variance of dropping out. It would therefore be beneficial to adjust additional aspects of the curriculum in order to help improve the regular program's holding power.

#### Implications for Program Holding Power

The results of this study revealed that about 11% of the sophomore dropouts from the school district participated in at least one exceptional education program. The percentage of dropouts from the regular, EMH and EH programs was approximately consistent with each program's

incidence level. The percentage of SLD dropouts exceeded the SLD incidence level, and the percentage of gifted dropouts was below the gifted program's incidence level. The study also provided data which revealed the dropout rates of each investigated program. The implications concerning the effectiveness of the holding power for each program are presented in this section.

The findings from this study suggested that there was no significant difference between the dropout rates of the EMH and EH programs when each was compared to the dropout rate of the regular education program. The implications are that both of these exceptional education programs are as effective as the regular education program in preventing students from dropping out, despite the student differences within each program. Based upon the above information and the characteristics believed to be associated with a good dropout prevention program, it could be assumed that both the EMH and the EH programs are effectively meeting the individual needs of most of their students and that the students from each program perceive that the educational system is responsive to their needs.

In addition, the findings from this study suggested that the dropout rate of the SLD program was significantly higher than the dropout rate of the regular education program. Even after the influence of the students' reading and mathematics achievement, entry age, race, and sex were statistically controlled for, the students in the SLD

program were more likely to drop out when compared to the students in the regular program. The implications are that the SLD program may not be as effective as the regular program in preventing students from dropping out. Despite the mandates of the EHA and attempts at providing individualized services for each student the SLD program's holding power was significantly less than the holding power of the regular education program.

It is therefore suggested that additional program modifications are necessary in order to better meet the needs of SLD students. It should be recognized that the factors which influence the SLD student to drop out appear to be different from the factors which influence the regular education student to drop out. Suggestions provided in the previous section included reducing the grade retentions of SLD students, improving students math skills, developing a more responsive IEP, encouraging additional instructional flexibility directed at meeting the goals specified within the IEP, providing additional flexibility regarding the criteria of a special diploma, providing staff development activities aimed at dropout issues stressing the importance of the teachers' role in reducing the dropout rate, and encouraging additional parental involvement. In addition, it is suggested that the expectations and the goals of the program may need to be adjusted in order to develop services which truly meet the needs of the at-risk SLD student.

The findings from this study also revealed that the dropout rate of the gifted program was significantly lower than the dropout rate of the regular program. One of the implications from these results could be that the gifted program is more effective than the regular program in preventing students from dropping out, but it is difficult to draw firm conclusions when one considers the differences in ability between the gifted students and the students in the regular program. However, the results from this study did provide evidence which implies that, contrary to the findings of previous researchers, the dropout rate of students within the gifted program is considerably below the dropout rate of students within the regular program.

#### Implications for Future Research

This study was developed in order to explore several of the basic questions within the area of dropout prevention for exceptional education students. Therefore, there are an enormous number of directions for future research within this field. This section contains a few of the implications for future research which have a direct relationship to the study at hand.

One possible methodological verification of the present study would be to enlarge the target population to include all students within each senior high grade level. This modification would serve two purposes: The proposed study would contain strong external validity, and the variable of grade level itself could be examined.

In addition, the results of this study suggest that reading and mathematics scores, entry age, race, and sex only account for a small percentage of the variance within the SLD students' dropout status. Therefore, a logical extension of this study would be to explore other factors which may influence an SLD student to drop out. Factors such as the following would be appropriate for future studies: family economic level, single parent family, influence of peers, influence of teachers, influence of schools, influence of vocational services, influence of the type of diploma desired, and involvement with extracurricular activities.

The last suggestion for future research concerns the holding power of the specific exceptional education programs. This study only provided relative information about the effectiveness of the holding power of specific programs. There is currently a need to investigate and determine which aspects of each program positively influence students to stay in school. The following variables are believed to be influential: responsiveness of program to students' needs, flexibility of curriculum, flexibility in graduation requirements, teacher concerns for students, student-teacher ratio, influence of vocational education, influence of schools, and influence of program expectations. Such research would take the present study a step closer to providing practical information that could be utilized for the improvement of programs for at-risk students.

## APPENDIX A

### SPECIFIC LEARNING DISABILITIES PROGRAM GUIDELINES BEACH COUNTY PUBLIC SCHOOLS EXCEPTIONAL EDUCATION STAFFING PROCEDURES

#### DEFINITION

Specific learning disability. A disorder in one (1) or more of the basic psychological processes involved in understanding or in using spoken or written language. Disorders may be manifested in listening, thinking, reading, talking, writing, spelling, or arithmetic. Such disorders do not include learning problems which are due primarily to visual, hearing or motor handicaps, to mental retardation, to emotional disturbance, or to environment deprivation.

#### CRITERIA FOR ELIGIBILITY

A student is eligible for special programs for specific learning disabilities if the student meets all of the following criteria:

- A. Evidence of a disorder in one (1) or more of the basic psychological processes. Basic psychological process areas include visual, auditory, motor and language processes:
  1. Documentation of process disorder must include one (1) standardized instrument in addition to the instrument used to determine the student's level of intellectual functioning.
  2. Corroboration of a process disorder must be present in the form of one (1) or more of the following:
    - a. analysis of student work samples
    - b. documented, systematic observations of student's classroom performance
    - c. additional norm or criterion referenced test data.
- B. Evidence of academic achievement which is significantly below the student's level of intellectual functioning:
  1. For students below age seven (7), evidence must be presented that the student exhibits a significant discrepancy between levels of intellectual functioning and achievement on tasks required for listening, thinking, reading, talking, writing, spelling or arithmetic. The following will be used to document the discrepancy:
    - a. classroom observations
    - b. work samples
    - c. anecdotal records
    - d. readiness tests

- e. district developed skills checklists or support systems
- f. standardized individually administered achievement tests.

2. For students ages seven (7) through ten (10), evidence must be presented that the student exhibits a discrepancy of one (1) standard deviation or more between an intellectual standard score and academic standard score in reading, writing, arithmetic or spelling.
3. For students ages eleven (11) and above, evidence must be presented that the student exhibits a discrepancy of one and one-half (1 1/2) standard deviations or more between an intellectual standard score and academic standard score in reading, writing, arithmetic or spelling.
4. Supporting data must be collected to substantiate scored academic deficits. Diagnostic test results and at least one sample of classwork must be collected which is supportive of deficit.

C. Evidence that learning problems are not due primarily to other handicapping conditions:

1. For students with intellectual deficits, evidence that intellectual functioning is no more than two (2) standard deviations below the mean on an individual test of intellectual functioning or evidence that a score below two (2) standard deviations below the mean is not a reliable indicator of the student's intellectual potential. In the latter case, another measure of the student's intellectual potential must be obtained.
2. For students with visual processing deficits, evidence that visual acuity is at least 20/70 in the better eye with best possible correction or evidence that the student's inability to perform adequately on tasks which require visual processing is not due to poor visual acuity.
3. For students with auditory processing or language deficits, evidence that loss of auditory acuity is no more than 30 decibels in the better ear unaided or evidence that the student's inability to perform adequately on tasks which require auditory processing or language is not due to poor auditory acuity.
4. For students with a motor handicap, evidence that their inability to perform adequately on tasks which assess the basic psychological processes is not due to the motor handicap.

D. Documented evidence which indicates that general instructional alternatives have been attempted for at least three weeks and found to be ineffective in meeting the student's educational needs.

## APPENDIX B

### EMOTIONALLY HANDICAPPED PROGRAM GUIDELINES BEACH COUNTY PUBLIC SCHOOLS EXCEPTIONAL EDUCATION STAFFING PROCEDURES

#### DEFINITION

An Emotional Handicap is defined as a condition resulting in persistent and consistent maladaptive behavior, which exists to a marked degree, which interferes with the student's learning process, and which may include but is not limited to any of the following characteristics:

- A. An inability to achieve adequate academic progress which cannot be explained by intellectual, sensory, or health factors;
- B. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers;
- C. Inappropriate types of behavior or feelings under normal circumstances;
- D. A general pervasive mood of unhappiness or depression; or
- E. A tendency to develop physical symptoms or fears associated with personal or school problems.

Students with disruptive behavior are not automatically eligible for the program unless they are also determined to be emotionally handicapped.

#### CRITERIA FOR ELIGIBILITY

A student is eligible for a special program for emotionally handicapped if there is evidence that:

- A. The student, after receiving supportive educational assistance and counseling services, available to all students, still exhibits an emotional handicap;
- B. An emotional handicap exists over an extended period of time, and in more than one situation;
- C. The emotional handicap interferes with student's own learning, reading, arithmetic or writing skills, social-personal development, language development or behavioral progress and control; and
- D. When intellectual, sensory or physical deficits exist, they are addressed by other appropriate interventions or special programs.

PROCEDURE

Students being referred for the emotionally handicapped program need the following completed:

- A. Conferences concerning the student's specific problem have been held with school staff and with parents (documented on the two page EH/SED admissions form).
- B. At least two anecdotal records or behavioral observations, relevant to the specific referral reasons, have been made by two different persons on two separate occasions.
- C. A minimum of two interventions have been attempted and the outcomes documented on the two page EH/SED admissions form.

STUDENT EVALUATION

- A. Social and psychological reports have been updated to within the past twelve months and medical, academic, attendance, and discipline records have been reviewed.
- B. Language, speech, hearing and vision have been screened.
- C. The two page EH/SED admissions form has been processed as follows:
  - 1) form is completed and signatures are in place;
  - 2) yellow and white copies are sent to the EH office;
  - 3) EH office logs referral, assigns receiving EH unit from list of feeder schools and initials upper right hand corner;
  - 4) white copy is filed by EH office and yellow copy is placed in mailbox of staffing specialist assigned to receiving school;
  - 5) staffing specialist contacts receiving school, which sets up eligibility staffing after inviting sending school;
  - 6) staffing specialist notifies EH office in case of problems, such as overcrowding, transportation, parental refusal, etc.

The staffing chairperson of the referring school ascertains that the above activities have taken place and all required reports or documents are placed in the student's cumulative folder.

## APPENDIX C

### EDUCABLE MENTALLY HANDICAPPED PROGRAM GUIDELINES BEACH COUNTY PUBLIC SCHOOLS EXCEPTIONAL EDUCATION STAFFING PROCEDURES

#### DEFINITION

Educable Mentally Handicapped - one who is mildly impaired in intellectual and adaptive behavior and whose development reflects a reduced rate of learning. The measured intelligence of an EMH student generally falls between two (2) and three (3) standard deviations below the mean and the assessed adaptive behavior falls below age and cultural expectations.

#### CRITERIA FOR ELIGIBILITY

In order to initially place a student in the EMH program, the following criteria must be met:

- A. The measured level of intellectual functioning, as determined by performance on an individual test of intelligence, is between two (2) and three (3) standard deviations below the mean. In most cases, the mean intelligence quotient is 100 and the standard deviation is 15-16. The standard error of measurement may be considered in individual cases. The profile of intellectual functioning shows consistent subaverage performance in a majority of areas evaluated;
- B. The assessed level of adaptive behavior is below age and cultural expectations; and
- C. Subaverage performance on an individually administered standardized measure of academic achievement is demonstrated. A behavioral observation or criterion referenced test for a student whose level of functioning is not appropriately measured by an academic test may be substituted.

#### STUDENT EVALUATION

Minimum student evaluations:

- 1) An appraisal of sensory functioning including vision and hearing assessment, and speech and language screening.
- 2) A standardized test of academic achievement at the appropriate age level and administered individually.
- 3) An adaptive behavior assessment.
- 4) A standardized individual test of intellectual functioning.

## APPENDIX D

### GIFTED PROGRAM GUIDELINES BEACH COUNTY PUBLIC SCHOOLS EXCEPTIONAL EDUCATION STAFFING PROCEDURES

#### DEFINITION

One who has superior intellectual development and is capable of high performance. The mental development of a gifted student is two (2) standard deviations or more above the mean.

#### ELIGIBILITY FOR CRITERIA

A student is eligible for special programs for the gifted if the student demonstrates the following:

- A. Superior intellectual development - an intelligence quotient of two (2) standard deviations or more above the mean on an individually administered standardized test of intelligence. The standard error of measurement may be considered in individual cases.
- B. A majority of characteristics of gifted children according to a standard scale or checklist.
- C. Need for a special program.

#### SCREENING, PREREFERRAL AND REFERRAL

- A. Academic records will be systematically reviewed to identify potentially gifted performance.
- B. Referrals will be obtained from classroom teachers, parents and others.
- C. Students who have been referred will be screened further by the administration of other screening instruments such as the Otis-Lennon group IQ test of subtests of an individual IQ test.
- D. Parent permission for evaluation will be requested for those students qualifying on the screening instruments.
- E. Upon receipt of parent consent, students will be given a full evaluation by a school psychologist.
- F. The total elementary population of gifted students will be screened to identify potential highly gifted students. Referrals to the program consultant are made by teachers of the gifted and a matrix is used for a final identification.

STUDENT EVALUATION

The minimum student evaluations for a student being referred for the gifted program are:

- A. An evaluation of intellectual potential.
- B. Demonstration of characteristics of the gifted.
- C. Statement of nonacademic performance.
- D. Demonstration of the need for a special program.

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#### BIOGRAPHICAL SKETCH

William Michael Bartnick was born November 5, 1950, in Syracuse, New York. He attended Miami High School in Miami, Florida, and obtained his Bachelor of Arts degree in psychology from the University of South Florida. William earned his Master of Science degree in school psychology from Florida International University in 1975. In 1986, William earned his Specialist in Education degree from the University of Florida. Between 1973 and 1976, William held a variety of positions at Sunland Training Center in Miami. He has been a school psychologist since 1976, first in Monroe County, Florida, and since 1979, in Orange County, Florida.

William is the son of Arlene and Bernard Bartnick. He lives with his wife, Brenda, and his daughter, Brianna, in the community of College Park in Orlando, Florida.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Education.

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Forrest W. Parkay, Chairman  
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